Chasing Disparity:
Economic Development Incentives and Income Inequality in the U.S. States[1]

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Abstract: Political scientists and policy scholars have traditionally looked at the role of welfare and tax policies in shaping income inequality. Less attention has been paid to the key policy area of economic development. But, states spend billions on economic development incentives each year in order to encourage firms to locate in their state. The few studies that have examined the impact of economic development policy on inequality have found mixed results, and have not considered who shapes and benefits from economic development policy when identifying possible causal mechanisms. I argue that increased incentive spending leads to increased inequality through either a market conditioning effect (incentives disproportionately boost the incomes of top earners prior to taxes) or a redistributive effect (incentives allow wealthy firms, investors, and employees to keep income that would otherwise be taxed and transferred). These mechanisms are tested using data on incentive spending and inequality across the fifty states from 1999-2014. The findings demonstrate that incentives increase income inequality via a redistributive effect only. This effect, though, is relatively large, long-lasting, and robust to different measures of incentive spending. Despite using economic development incentives to try to generate greater prosperity, state governments may be inadvertently exacerbating inequality.

Key Words: economic development policy, income inequality, state politics, market conditioning, redistribution

[1] This paper is forthcoming at *State Politics and Policy Quarterly*. Last updated November 1, 2019.

Economic inequality has steadily risen in the United States since the 1980s as the incomes of top earners have grown substantially while the incomes of bottom and middle earners have stagnated (e.g. Piketty and Saez 2014). Growing economic disparity poses particularly acute challenges to state governments by straining public budgets (Boak 2014), curbing economic growth (Panizza 2002), and creating inequities in citizens' access to health and education (Jencks 2002). As a result, several states have begun to experiment with new economic policies to reduce inequality (Franko and Witko 2018).

Policy experimentation in the states allows scholars to test whether a given policy mitigates or exacerbates income inequality. Previous studies have examined the effect of state-level welfare spending, unemployment and disability insurance, progressive tax rates, Earned Income Tax Credits (EITC), the minimum wage, right to work, and levels of unionization on inequality (Barrilleaux and Davis 2003; Kelly and Witko 2012; Hatch and Rigby 2015; Hayes and Medina Vidal 2015; Kogan 2018; Bucci 2018). In their excellent work on state policy and inequality, Franko and Witko (2018) identify some states as leaders in adopting policies to mitigate inequality, such as Washington, New Mexico, Oregon, Michigan, and New York, each of which adopted higher minimum wages and more generous EITCs.

But, these same states are also some of the biggest spenders on economic development incentives, each averaging over $100 per person per year on incentives.[2] Economic development incentives are policies that reduce costs to businesses in order to encourage investment and create jobs (Saiz 2001; Langer 2001; Hanley and Douglass 2014; Jansa and Gray 2017). These incentives include property, sales, and income tax credits and rebates, tax abatements, bonds, grants, cost reimbursements, and infrastructure assistance (Jansa 2016). Incentives have been

[2] See Figure 1 below for a map of economic development spending by state and discussion of state rank ordering.

called "the leading tool used by states to grow their economies" (Pew Center 2012), with the states collectively spending $199 billion on incentives from 1999-2014. The largest incentive packages often grab headlines, such as when Amazon, Ford, and Nike each received $2 billion or more in awards from New York, Michigan, and Oregon, respectively (Rogoway 2012; Eggert 2015; Ivanova 2018).

Yet, we know little about the effect of this prominent area of state policy[3] on inequality. This is surprising given that the extant literature on economic development policy shows that spending is extremely skewed and benefits just a few, wealthy firms (Jansa and Gray 2017) and that the efficacy of incentives in generating broad wage and job growth is questionable (Brace 1993; Buss 2001; Dewar 1998; Lynch 2004; Peters and Fisher 2004). Extending this literature, I argue that incentives may increase inequality through market conditioning by boosting the incomes of relatively wealthy employees and investors while doing little for working and middle class incomes. Incentives may also increase inequality through a redistributive mechanism by either keeping income concentrated at the top through reduced taxes, or creating conditions for retrenchment by providing funds and reducing taxes on the wealthy, and limiting broad redistribution through other public programs.

I use data on state-level incentive spending from 1999-2014 in an error-correction model to test the hypotheses. Using three different measures of inequality to isolate which mechanism is at work, the results show that higher levels of incentive spending are associated with higher levels of post-transfer income inequality. This indicates that incentives increase inequality by

[3] Economic development policy is different from development policy in the typological sense, which is usually considered growth producing budget outlays (Peterson 1981). While there is some overlap, economic development includes non-budgetary outlays such as tax credits, and developmental policy includes policy areas that are not usually considered economic development policy such as funding for natural resource management. I rely on previous work that has described and characterized economic development policy as a distinct policy area (Eisinger 1988; 1995; Saiz 2001; Turner 2003; Hanley and Douglas 2014; Young 2016; Jansa and Gray 2017).

reducing broad redistribution and concentrating benefits with the relatively wealthy over the long-run. The results help clarify the mechanism that governs the relationship between economic development and income inequality, which has eluded previous studies on the topic (Langer 2001; Young 2016; Wang et al 2018). The results also speak to the larger literature on public policy and income inequality by refocusing it on a major area of policy for state governments: economic development. If economic development policy serves as an exacerbator of inequality, then scholars have an incomplete picture of the states' role in shaping the distribution of income. While state officials intend to use incentives to compete for investment, they may be actually growing the gap between rich and poor by providing benefits to those least in need.

Redistribution, Market Conditioning, and Income Inequality

There are typically two ways in which governments can affect the distribution of income. First, governments can have a *redistributive effect* by shaping the distribution of resources after taxes have been collected and the funds transferred according to policy. Typically, resources are redistributed to the neediest citizens through direct transfer programs, like food stamps or aid to needy families, or by paying for broadly accessible services such as education. But, if government distributes resources toward those at the top of the economic ladder, inequality can increase. Further, if a government declines to tax the income of top earners, inequality will be higher than if the government assumed a larger role in taxing and transferring. Scholars call the resulting level of inequality after taxes and transfers *post-transfer inequality*, while the level of inequality after-taxes, but prior to transfers (thereby isolating the effect of taxes on inequality) is called *pre-transfer inequality* (Gottschalk 1993; Kelly and Witko 2012).

At the national level, redistributive efforts are generally effective at reducing inequality (Pierson 1995; Jencks 2002; Hacker 2002; Hungerford 2010). Comparatively, countries with

larger welfare states typically have more equal distributions of income (Piketty and Saez 2014; OECD 2016), and cuts to the American welfare state (Pierson 1995) and increased privatization (Hacker 2002; Faricy 2011) have been shown to increase inequality. There is mixed evidence, though, of states' capacity to reduce inequality via redistribution. Barrilleaux and Davis (2003) find that state redistributive efforts have a very small effect on income inequality, and these policies tend to increase inequality. Hayes and Medina Vidal (2015), on the other hand, find that welfare payments and unemployment compensation can reduce inequality. Studies examining the effect of both state and national redistributive policies find that state-level effects are dwarfed by the efforts of the federal government (Kelly 2009; Kelly and Witko 2012).

Governments can also affect income disparity through *market conditioning,* or by shaping economic behavior in a manner that produces more or less inequality in the workplace, prior to directly taxing and transferring resources (Kelly 2009; Faricy 2011; Kelly and Witko 2012; Hatch and Rigby 2015). For example, the loosening of CEO compensation rules and the failure to update labor relations and minimum wage laws by the U.S. federal government have led to an increase in market inequality (Hacker and Pierson 2010; Enns et al 2014). At the state-level, Hatch and Rigby (2015) find that pro-labor market policies (i.e. absence of a right to work law, having a relatively high minimum wage) tend to decrease market inequality, while spending on the poor is associated with increased market inequality because high welfare benefits may discourage some low-wage earners from working more at the margins. Scholars refer to the level of inequality excluding taxes and transfers as *market inequality* (Enns et al 2014).

Economic Development Policy and Income Inequality

Despite the broader literature on policy and inequality, just three studies have looked explicitly at the relationship between economic development policy and income inequality.

Langer (2001) finds that states that emphasize locational economic development (i.e. have policies focused on attracting and retaining firms to the state) also tend to have higher levels of income inequality. On the other hand, states that emphasize entrepreneurial economic development (i.e. have policies focused on fostering the development of new firms in the state) tend to have lower levels of inequality. Young (2016), though, finds the opposite: entrepreneurial efforts lead to rising inequality and there seems to be no effect for locational efforts.

Both Young (2016) and Langer (2001) use policy indices to measure each state's comparative effort on the locational and entrepreneurial dimensions.[4] These indices reflect the number of programs in each area, rather than the resources committed to economic development. The indices also treat entrepreneurial and locational incentive programs as mutually exclusive. Yet, recent research shows that states are increasingly mixing and matching both approaches as part of a total effort to grow, attract, and retain investment, committing significant sums to these efforts (Eisinger 1995; Hanley and Douglass 2014; Jansa 2016). One study by Wang et al (2018), though, looks at incentive spending and income inequality and finds a 'Reverse-Robin Hood effect' where higher incentive spending is associated with greater income disparity.

These authors also take different theoretical approaches to their studies. Langer (2001) argues that economic development policy has a redistributive effect on inequality by exhausting resources that could otherwise be redistributed through welfare, health care, education or related programs. As Langer describes, economic development policy "significantly drains state finances" and "seemingly fails to produce quality growth in jobs and investment in citizens...that would compensate the state and its citizenry for the loss of resources" (2001: 395). Wang et al

[4] Langer (2001) developed an index using Eisinger (1988) as a guide, while Young (2016) extended an existing index from Saez (2001).

(2018) also recognize the possibility of incentives having a redistributive effect, specifically through the displacement of welfare spending, citing Wang (2016) who found a negative relationship between incentive and welfare spending. But, the authors provide a number of other reasons that inequality could grow due to increased incentive spending, such as subsidizing the addition of jobs at the low and high end of the income distribution, crowding out the opportunity to restructure the state's tax code to provide more widely shared benefits, and failing to bring sufficient economic benefits to offset the costs of incentives (Wang et al 2018). The authors do not test which of these channels is correct, and instead establish the relationship between higher spending and greater inequality – an extremely important but somewhat limited contribution.

On the other hand, Young (2016) argues that economic development has a market conditioning effect, claiming "Entrepreneurial strategies prioritize production of 'quality' high-paying jobs, which may actually serve to exacerbate inequality levels among workers, because those with higher skill levels could command a 'skills wage premium,'" (2016: 275). This argument also seems to be reflected by Wang et al's (2018) assertion that incentives subsidize the addition of jobs at the top of the income ladder.

The mixed results suggest that new extensions are needed for scholars to understand how states may be affecting inequality through their use of incentives. Methodologically, a strong test of the effect of incentives on inequality should measure differences in economic development effort across the states using spending as the primary indicator. This is a clearer measure than an index of how much states are actually incenting firms to locate and expand within their borders. Also, inequality can be measured as market, pre-transfer, and post-transfer inequality, allowing the researcher to isolate and test the possible market conditioning and redistributive mechanisms. Theoretically, clarity is needed on how the redistributive and market conditioning mechanisms

actually work in the context of economic development policy. To bring this clarity, one should consider the political process in which economic development policy is made. Incorporating this literature will help answer for who is likely to reap the rewards of economic development policy.

The Political Economy of Incentives in the American States

Traditionally, economic development policy has been viewed as the product of competition between the states. State governments must provide incentives in order to attract investment, or risk losing investment to other jurisdictions (Eisinger 1988; 1995; Peterson 1995; Saiz 2001). But, there is increasing evidence that interstate competition is not the uncaused causer it is purported to be, but is itself shaped by concerted business lobbying (Harrison and Kanter 1978; Shermer 2013; Jansa and Gray 2017; Jansa 2018). Business leaders have leveraged globalization to extract resources from state governments (Harrison and Kanter 1978), pursued close working relationships with state legislators to implement low-wage, low-tax, and high-incentive policy regimes (Shermer 2013), and secured multiple avenues for participation in economic development policymaking (Jansa 2018). Indeed, business groups outnumber other organizations in economic development policymaking (Gray and Lowery 1991) and increased business campaign contributions are associated with higher incentive spending (Jansa and Gray 2017).

This process affects the distribution of incentives. Jansa and Gray (2017) show that incentive spending is extremely skewed toward a few, extremely wealthy firms. From 2006 to 2013, thirty-one of the fifty top recipients of incentives were Fortune 500 firms. The top recipient, Boeing, received over $10 billion in incentives. The top-fifty firms are just 1 percent of all firms receiving incentives but account for nearly 46 percent of all incentive spending. The

bottom 99 percent of firms divided the other 54 percent of spending, and this does not include the thousands of firms that do not qualify for or receive incentives.

While it can be argued that incentives are necessary for attracting investments to particular locations, in the aggregate incentive programs have been found to be largely ineffective. Buss (2001) and Lynch (2004) find little evidence that incentives meet job creation targets or generate economic growth. Part of the problem is that incentives are often awarded in pursuit of political goals, rather than economic goals (Dewar 1998; Turner 2003). Peters and Fisher (2004) put it more bluntly, saying "incentives work about 10 percent of the time and are simply a waste of money the other 90 percent" (32).

Incentives tend to be ineffective because they finance normal market behavior, or, in other words, help a firm do what it likely would have done on its own (Lynch 2004). Firms make decisions to expand, relocate, or hire more people because doing so is an investment in its own competitiveness and profitability. Firms, especially globally competitive ones like Boeing, Ford, Amazon, Nike, and others, will decide to expand if it makes sense for their bottom line. By providing incentives, a state declines to generate tax revenue to encourage decisions firms have already made (Lynch 2004; Jansa 2018).

The effectiveness of incentives can also be hampered if they are awarded in response to rent-seeking, which is the process by which firms use their economic resources to procure benefits without making reciprocal investments. Specifically, a firm can threaten to leave the state, or expand elsewhere, unless it is awarded more incentives. In response to threat, the state may commit additional resources to maintain investment. This is what happened in Oregon in 2012, when Nike threatened to relocate unless it was awarded a thirty-year, $2 billion extension on its property tax subsidy. It is still unknown if Nike had incentive offers from other states, or

what additional investments Nike made after receiving the extension. Whether a firm received incentives because states decided to subsidize their investment in the state, or the firm used the threat of exit as leverage, incentives tend to benefit the largest, wealthiest firms without evidence of widespread job creation and higher wages as a result.

The Redistributive and Market Conditioning Effects of Economic Development Incentives

The lack of job and wealth creation for most workers and the extreme concentration of the benefits of incentives with the wealthiest firms are conditions that can lead to increased income inequality. But, it is not clear whether these conditions produce mainly redistributive effects or market conditioning effects.

The Redistributive Mechanism

Incentive spending can affect inequality via redistribution in one of two ways: First, by lowering taxes and directly providing public resources to a few firms, states reduce the resources available for broadly redistributive public programs and redistributing resources up the economic ladder over the long run. This long-run atrophy brought on by the reduction of tax liability among top earners and the restructuring of public efforts to the benefit wealthy firms and individuals is part of the retrenchment process that has been previously linked to growing income inequality (e.g. Hacker and Pierson 2010). Second, by reducing taxes on firms and their employees, states may simply be keeping income concentrated among the relatively wealthy.

Starting with the retrenchment story, we know that some incentives take the form of public bonds and infrastructure assistance, in which the state spreads the costs of investments across tax payers and concentrates the benefits among the few firms who receive such incentives. When states use incentives in this way they are essentially engaging in redistribution upward or, by classical definitions of policy, distributive policy that benefits the relatively wealthy.

But this is not the whole story since direct expenditures for economic development are less common than reduced property, income, and sales taxes (Jansa and Gray 2017). The use of incentives in this way means that the state generates less revenue than it would have had it not subsidized the investment. The state's capacity to redistribute may become restricted due to reduced tax liabilities on expanding firms. This lost revenue could have been used to fund education, transportation, and community programs, which help to increase the earnings potential of citizens by providing skills and the means of making money, or could have been used to fund social welfare programs, which help to buoy low-income individuals and shrink the gap between the rich and the poor. Under these conditions, the social safety net is likely to atrophy simply by not having the resources to keep up with growing demand for services.

Thus, incentives can increase inequality by redistributing resources to top earners and by reducing the state's capacity to redistribute to low and middle income earners over the long-run. If this argument holds, there should be evidence of incentive spending affecting the level of post-transfer inequality. Specifically, the more a state spends on incentives, the more unequal the distribution of post-transfer income in the state. I will refer to this as the *post-transfer hypothesis*.

But, it is important to note that using incentives to reduce tax liability does not necessitate cuts, or even atrophy, in redistributive programs. The impact of states' incentive spending on the budget can be lessened by keeping tax rates high, broadening the tax base, delivering the same services but cutting administrative costs, or not expanding services over time. Often, states pursue multiple, conflicting goals at the same time, such as providing a robust social safety net and reducing the burden on the wealthy to provide funds for the safety net. Thus, it could be that inequality increases simply because incentives reduce the tax burden on top earners. This would still be a redistributive effect, because government is involved in shaping the distribution of

income after taxes, it is just that states are allowing the relatively wealthy to keep more of their income rather than transferring it to the state to pay for programs. If this is the case, then the more a state spends on economic development incentives, the more unequal the distribution of after-tax, pre-transfer income in the state. I will refer to this as the *pre-transfer hypothesis*.

The Market Conditioning Mechanism

It could also be the case that economic development spending contributes to a more unequal distribution of income in the marketplace. Incentives are intended to create jobs and grow the economy by conditioning the state's market to make it friendlier to businesses, especially the wealthiest businesses with the most resources to invest. However, when the intended job and wage impacts are negligible, incentives instead serve to make markets more lucrative for investors, executives, and those already gainfully employed. This could lead to greater income disparity without any explicit government role in redistributing benefits upward.

The individuals who seem to benefit most from incentives are the highest ranking employees and investors of the wealthiest firms, as what is generally good for the bottom line of the firm (i.e. less tax liability) is good for their incomes as well. As the 2017 federal tax reform bill demonstrates, lower tax liabilities for businesses tend to be used on stock buybacks and increased dividends for investors, without significant wage increases for employees (Gravelle and Marples 2019). In this way, the benefits of incentives are disproportionately concentrated in the incomes of this small fraction of the American workforce.

Others may benefit from incentives, but these tend to be individuals who are already securely employed. For example, a firm may receive incentives to relocate from another state. When this happens, as it often does, existing job holders may relocate with the company. If these imported jobs are relatively high paying, which they likely are in order to entice people to

relocate, then the state essentially added to the ranks of the employed, and to the ranks of middle to high earners, but did not create new income for middle to low earners. To guard against this, states sometimes require companies to hire a certain number of workers locally. But, the company may hire a worker who already has another job within the state. If that happens, public dollars are used to provide more for those who already have work, rather than those out of work. This argument is akin to Young (2016) and parts of Wang et al (2018) which recognized that incentives add to the ranks of the relatively wealthy, rather than raising incomes for others.

This market conditioning effect could be mitigated if incentives were used to create opportunities that otherwise would not exist, such as the attraction of major ventures that employ many low-income and underemployed workers at higher incomes than existing employers provide. Yet, increasingly, states use incentives to subsidize industries at the low- and high-end of the income distribution, such as retail and entertainment on the low-end, and finance and insurance on the high-end (Jansa 2018). For these reasons, incentives could have a market conditioning effect on the distribution of income. Therefore, the more a state spends on economic development incentives over time, the more unequal the distribution of market income in the state, all else equal. I will refer to this as the *market hypothesis*.

Data and Methods

To test the hypotheses, I examine the effect of incentives on measures of market, pre-transfer, and post-transfer inequality across the states from 1999-2014. Inequality is measured in three different ways. The first is *top decile income share*. This measure is the percentage of income accrued by the top ten percent of households in each state in a given year. The measure is created by Frank et al (2015), and is commonly used in studies of state-level inequality (e.g. Franko and Witko 2018). Frank et al (2015) use anonymized Internal Revenue Service (IRS)

data on adjusted gross income (AGI) by tax unit for each state in each year to construct the measure. AGI is a sum of income prior to taxes and excluding income from public sources, but it does include deductions allowed under the U.S. tax code. This is the closest measure in existence to capturing the pre-tax, pre-transfer level of inequality, i.e. market inequality. This dependent variable is used to test the market hypothesis.

Second, *pre-transfer Gini* is a Gini coefficient that ranges from 0 to 1 with larger numbers indicating more unequal distribution of income. This is calculated for each state for each year on all household income, excluding income from public programs such as social security, unemployment, and worker's compensation. Thus, the measure captures the post-tax but pre-transfer level of inequality, helping to isolate whether incentives affect inequality through a redistributive mechanism simply by keeping income concentrated at the top through reduced tax liability. Data on household income by source comes from the U.S. Census Bureau's Annual Social and Economic Supplement (ASES). The measure is constructed by Kelly and Witko (2012) and extended to 2014 by Bucci (2018).[5] This dependent variable is used to test the pre-transfer hypothesis.

Finally, the *post-transfer Gini* is used to test the post-transfer hypothesis. This is calculated for each state for each year on all household income, including income from public programs like social security, unemployment, or worker's compensation, using the same U.S. Census Bureau data. This measure is also produced by Kelly and Witko (2012) and extended by Bucci (2018).

[5] The authors refer to this measure as market inequality, but I refer to it as the pre-transfer Gini to distinguish it from the top decile income share measure, which is a more direct measure of market inequality.

Incentive spending is measured as *per capita incentive spending.* This is the total value of economic development incentives awarded by each state for each year in thousands of dollars, adjusted for inflation and divided by the population of the state. The data is provided by the Good Jobs First Subsidy Tracker (2016), the same data source as Jansa and Gray (2017) and Wang et al (2018). Good Jobs First (GJF) is a non-profit organization that gathers all publicly available data on incentives across the states. There are over 150,000 observations in the dataset; each observation is a specific award made by a state to a firm. A number of different incentives are included in the dataset, including tax credits and rebates, property tax abatements, grant and low cost loans, enterprise zones, tax increment financing, job training and general cost reimbursements, bonds, cash, and infrastructure assistance, and "megadeals" that are packages of incentives valued at over $50 million.[6] Incentive awards range in size from a single dollar to over $8 billion.

[Figure 1 about here]

Figure 1 shows the average per capita incentive spending by state from 1999-2014. A diverse set of states spends very little, averaging less than $10 per person annually: Arizona, California, North Dakota, New Hampshire, South Dakota, and Virginia. Colorado nearly makes that group with $10.32 per person on average. On the other end of the spectrum, eight states spent over $100 per person per year on average. The biggest spender was Louisiana with an average of $267 in incentives per person, followed by New Mexico ($197 per person), Washington ($182), Oregon ($136), and Michigan ($128). There is substantial variation in regions like the industrial Great Lakes, where some states like Wisconsin ($16), Pennsylvania ($18), Ohio ($24), and Illinois ($24) spend relatively little per capita while others like Indiana

[6] See Jansa and Gray (2017) for a deeper discussion of the types of incentives and their use across the states.

($91) and Michigan ($128) spend greatly. Even states with small and seemingly strapped budgets are in the top tier of spenders, such as Mississippi, which tended to award large sums to single companies, such as $340 million in tax reductions and $260 million in bonds to Continental Tire for a new tire plant (Pender and Hall 2016).

[Figure 2 about here]

In addition to cross-sectional variation, there is substantial variation over time. Figure 2 shows the average per capita spending from 1999-2014. First, there has been an increase in spending across the states over time. From 1999-2003, the states collectively spent less than $50 per person. This spiked in 2004, but returned to previous levels in 2005 and 2006. But, from 2007 to 2014, the states averaged over $50 per person each year except 2008. In 2013, spending was over $100 per person. The onset of the Great Recession seems to have created a new normal level of incentive spending across the states, as others have argued (Shermer 2013; Jansa and Gray 2017). Figure 2 also shows subgraphs for 4 exemplar states—Colorado, Oregon, Indiana, and Ohio—to demonstrate that individual state spending also varies over time. Colorado is a good example of a state with persistently low per capita spending, while Ohio is a persistently moderate spender. Indiana was persistently high (with small fluctuations) while Oregon has periodic large spikes in spending. Because of heterogeneous variation by state, I estimate each model with state fixed effects and standard errors clustered by state.

I also collect data for a number of control variables. To control for the economic conditions that likely impact inequality, I use *unemployment rate* (percent of the workforce unemployed), *union membership* (percent of the private workforce that belongs to a union), and *gross state product [GSP]* (in trillions of dollars). As unemployment and GSP increase, so too should inequality, because economies with high joblessness and larger, developed economies

tend to have greater income disparity. Conversely, as unionization goes up and workers bargain for higher wages, inequality should decrease.

Data on a number of different policies was also collected. *Minimum wage* is the nominal dollar value of the minimum wage for each state-year. Since the policy is designed to raise the incomes of low-wage workers, it is expected that states with a higher minimum wage will have lower inequality. *Corporate income tax rate* and *personal income tax rate* are included in the models that use pre- and post-transfer Gini as the dependent variable, since these tax policies shape how much income remains with top-earners after government taxes. *Welfare spending* measures how much states spend, per capita, on all public welfare programs each year in thousands of dollars. This measure captures how active states are in redistributing resources, important for modelling post-transfer inequality. As taxes and welfare increases, inequality should decrease. Also included as a control is *government ideology,* measured using Berry et al. (1998) scores. Higher scores indicate more liberal governments. Inequality may decrease under more liberal governments, as others have found (e.g. Kelly and Witko 2012).[7]

[Table 1 about here]

Demographically, I control for *nonwhite population,* which is the percentage of the state population that belongs to a racial/ethnic minority group, and *elderly population,* which is the percentage of the state population that is age 65 and older. Nonwhite and elderly populations tend to earn less than whites and working age people. Thus, states with a greater proportion of their population from these groups are expected to have greater income inequality, as previous studies have found (Kelly and Witko 2012; Hatch and Rigby 2015). Finally, Table 1 provides a

[7] Although previous studies have found lower inequality under more liberal governments, party control and government ideology do not appear to be strongly correlated with incentive spending. The correlation between party control (higher values indicating Dem control) and per capita incentive spending is 0.01, while the correlation between government ideology (higher values indicating liberal ideology) and per capita incentive spending is 0.06.

full listing of each variable, its measurement, data source, and descriptive statistics. The data for all variables spans the years 1999-2014.

Using this data, I estimate six time-series cross-sectional (TSCS) error correction models (ECM). An ECM stipulates that change in the dependent variable is predicted by 1) the lagged value of the dependent variable, 2) simultaneous change in the independent variable(s), and 3) the lagged value of the independent variable(s), also known as a long-run effect of the independent variable(s).

The model is formulated in Equation 1 below.

(1) $\Delta Income\ Inequality_{it} = \beta\ Income\ Inequality_{it-1} + \beta \Delta\ Incentive\ Spending_{it} + \beta\ Incentive\ Spending_{it-1} + \beta \Delta\ controls_{it} + \beta\ controls_{it-1} + e$

This modelling strategy was chosen for several reasons. First, the ECM is appropriate for modelling TSCS data when the dependent variable is a bounded unit root and it is cointegrated with each independent variable (Keele, Linn, Webb 2016; Enns et al 2016). Each of the dependent variables in this analysis is bounded (between 0 and 100 for top decile income share, and 0 and 1 for pre- and post-transfer Gini coefficients) and each tested positive for a unit root, according to augmented Dickey-Fuller tests. Each of the dependent variables was also found to be cointegrated with independent variable using an augmented Dickey-Fuller test.[8] Second, the model provides the ability to calculate the distributed (long-run) effect of the independent variables on the dependent variable. The ECM is mathematically equivalent to the autoregressive distributed lag (ADL) model, which allows researchers to use both the change and long-run coefficients to estimate the effect of independent variables at different lagged (or lead)

[8] P-values less than .05 on the augmented Dickey-Fuller means one can reject the null hypothesis of no unit root. This held for all pairs of variables except the pairing of top decile income share and per cap incentive spending. When top decile was first differenced, in order to imitate the actual form of the ECM, the p-value fell below the accepted threshold.

time periods (DeBoef and Keele 2008; Banda and Windett 2016). This is ideal given the theoretical argument provided above that incentives may have long-run redistributive effects. Third, alternative TSCS models, such as the two-way fixed effects model (or difference in differences model), is not ideal for this application because the data is not quasi-experimental and the parallel trends assumption does not hold (Kropko and Kubinec 2018). Finally, the model is commonly used in the study of state-level income inequality and thus helps build upon previous studies on the topic (Kelly and Witko 2012; Hayes and Medina Vidal 2015; Young 2016).

Model Results

The results are presented in Table 2. Models 1 and 2 use change in top decile income share as the dependent variable, while Models 3 and 4 use change in the pre-transfer Gini and Models 5 and 6 use change in the post-transfer Gini. Models 2, 4, and 6 include controls.

[Table 2 about here]

The results do not provide enough evidence to support the market hypothesis. In Table 2, Model 1, the long-run coefficient for incentive spending is positive and statistically significant. But, this relationship does not hold with the inclusion of control variables in Model 2. Other economic and political factors seem to matter more in determining market inequality, such as union membership (negative, $p<.05$), GSP (positive, $p<.05$), and government ideology (negative, $p<.05$). Increases in GSP and nonwhite population are significantly associated with contemporaneous increases in the income share of top earners.[9]

[9]Although statistically significant, the long-run coefficient for elderly population, and the change coefficient for unemployment and elderly population is in the unexpected direction.

There is suggestive but weaker evidence to support the pre-transfer hypothesis. In Model 3, the long-run relationship between incentive spending and inequality is positive and significant. This positive relationship holds with the inclusion of control variables in Model 4, although the significance level drops from $p<.05$ to $p<.1$. Other important factors according to Model 4 results include elderly population, which tends to increase inequality in the long-run, and increased minimum wage and corporate taxes, which tend to decrease inequality in the long-run.

There is supportive evidence of the post-transfer hypothesis. In Model 5, the long-run coefficient for incentive spending is estimated to be positive and significant. That is, increased incentive spending at *t-1* leads to increased post-transfer inequality at *t*. These results hold with the introduction of a number of control variables in Model 6. In fact, the estimated effect size is nearly the same as Model 5. The factors that are also statistically significant in Model 6 include union membership (negative, $p<.05$), corporate tax rate (negative, $p<.05$), elderly population (positive, $p<.05$), and welfare spending (negative, $p<.1$).[10] Each of these is in the expected direction. Increases in elderly population are also significantly associated with contemporaneous increases in inequality.[11]

Robustness Checks

It appears that Models 5 and 6 provide evidence that incentive spending has a redistributive effect on economic inequality. The post-transfer Gini, which measures the level of inequality after both taxes and income from public sources is accounted for, is significantly higher after states increase incentive spending. Models 3 and 4 provide suggestive but weaker

[10] Using a power resources theory framework, Young (2016) argues that unions work to shape economic development policy in a way that it directs resources to lower and middle income workers and small business owners. In analyses not reported here, I interact union membership and incentive spending. I find no statistical evidence of a conditional effect of incentives on inequality depending on the level of union membership.

[11] The results in Models 1 and 2 do not match the results in Models 3-6 for the elderly population variable. The results for elderly population in Models 3-6 are in the expected direction.

evidence that incentive spending affects inequality via a redistributive effect by simply keeping income concentrated at the top through reduced taxes. There is a consistently positive relationship, but the significance level does not hold to the $p<.05$ threshold with controls.

Exploring this relationship further through alternative model specifications, it appears that the change in significance level in the pre-transfer models is due to 1) measurement of incentive spending on a per capita basis and 2) the inclusion of demographic controls. These alternative specifications can be found in the Online Supplemental Material.[12] Population controls are important to include but create inefficiency in the model estimation due to correlation with each other and with GSP; removing them reduced the average Variance Inflation Factor (VIF) for the model from 13.55 to 8.88 and yielded results for incentives significant at the $p<.05$ threshold.[13] Additionally, measuring spending as logged total spending, rather than per capita spending, yields positive and significant coefficient estimate at the $p<.05$ level. Using per capita spending helped ensure the results were not driven by more populous states having a greater capacity to spend more on incentives, and needing to spend more in order to affect job and wage growth. Relaxing this assumption yields more supportive evidence. Thus, there is a consistently positive estimated relationship between incentives and pre-transfer inequality, robust to measurement of spending and the inclusion of economic and political control variables, but not the inclusion of demographic controls when per capita spending is used. Alternative specifications produced consistently positive and significant estimates for incentives and post-transfer inequality, and consistently null results for incentive spending and market inequality.

[12] Across seven specifications (Models 3 and 4 in Table 2; Model 2 in Tables A1-A5 in Online Supplemental Material), the effect of incentive spending on pre-transfer inequality is positive and significant at the $p<.05$ level in four of the seven models and positive but significant at the $p<.1$ level in three of the seven models. These results can be found in the online supplemental material.

[13] Nonwhite population is strongly positively correlated with GSP ($r = 0.55$), and elderly population and nonwhite population are substantially related to one another ($r=-0.15$).

Taking these results together, it appears incentive spending leads to higher inequality via a redistributive mechanism, specifically a long-run retrenchment mechanism. Recall that incentive spending can affect inequality via redistribution by providing benefits up the economic ladder and by atrophying the social safety net by reducing the resources available for broad redistribution. Alternatively, incentive spending can affect inequality via redistribution simply by keeping income concentrated at the top regardless of what happens to broad redistributive efforts. There is evidence consistent with the former based on the model results. The evidence for incentives creating inequality through reduction of taxes at the top is more tenuous.

Understanding the Effect Size of Incentives on Inequality

It can be difficult to understand how much incentives affect inequality from the coefficients alone. Using the Model 6 coefficients, a change from one standard deviation below the mean ($0.01) to above the mean ($187) would correspond to an increase in the state's post-transfer Gini coefficient of .004. An effect this size translates to tangible differences in real income. For a relatively poor state like Mississippi, an effect this size corresponds to about $628 more for top earning household, which are households earning over $76,712 per year after taxes and transfers. In a wealthy state like Connecticut, it is more like $960 extra for households earning over $109,178.[14] On average across the states, the incomes of top 10% earning households would increase by 0.8% if the post-transfer Gini increased by .004. A change in incentive spending of this magnitude is not uncommon; a small state would need to award about a $200 million incentive package, a typically sized state would need to award a $1 billion, and a large state would need to award about $2 billion incentive package. Packages worth these sizes

[14] These were calculated by taking the incomes in dollars of the top 10% in each state and using cross multiplication to figure how much their income would have to increase to change the post-transfer Gini by .004. The calculation for Mississippi was [($76,712 * 0.493)/0.489]-$76,712. The calculation for Connecticut was [($109,178 * 0.459)/0.455]-$109,178. This calculation assumes that incomes of the bottom 90% is constant.

have been adopted 17 times since 1999 by 12 states to companies such as Tesla ($1.2 billion from Nevada), Intel ($2 billion from New Mexico in 2004 and $2 billion from Oregon in 2014), and Boeing ($3.2 billion from Washington in 2003, $8.7 billion from Washington in 2013, and $900 million from South Carolina in 2009) to name a few (Good Jobs First 2016).[15]

One can also compare the effect of union membership, corporate tax rate, and welfare spending to the effect of incentive spending to provide context for the size of this effect. To do this, it is important to consider two things. First, that the estimated total effect of an independent variable on the dependent variable in an ECM is actually captured by the change and lagged coefficient estimates together. Using these estimates, one can calculate the effect of an independent variable over several time periods, or the distributed effect, using a method developed by Banda and Windett (2016), built on logic by DeBoef and Keele (2008).[16] Second, one should compare expected changes in inequality for a typically observed increase for each variable. This helps quantify what would happen to inequality if a state were to increase taxes or spending, as they have done in practice. Therefore, I calculate the distributed effects for each variable using typically observed increases[17]; that is, for an increase from the mean year-over-

[15] Also, Nissan ($1.3 billion, Mississippi), ThyssenKrupp ($1.1 billion, Alabama), Areva ($276 million, Idaho), Cheniere ($1.1 billion, Louisiana), Sempra ($2.2 billion, Louisiana), Ford ($2.3 billion, Michigan), GM ($2.3 billion, Michigan), Forest City Enterprises ($355 million, New Mexico), Alcoa ($5.6 billion, New York), Nike ($2 billion, Oregon) and Cerner ($1.6 billion, Missouri).

[16] The effect for Year 1 is calculated as $\Delta x * qi$, where Δx is the coefficient estimate for change in incentive spending and qi is .135, which is equal to a typical increase in incentive spending (i.e. one standard deviation above the mean observed change in incentive spending). The second year is $(x_{t-1}-\Delta x)*qi+(1-abs(y_{t-1})*a)$, where x_{t-1} is the coefficient for lagged incentive spending, y_{t-1} is the coefficient for lagged post-transfer inequality and a is the value of the year 1 equation. All years going forward are calculated as $(1-abs(y_{t-1})*b)$, where b is the value of the previous year equation. This calculation was repeated for union membership, corporate tax rate, and welfare spending, which are the other statistically significant policy variables in Model 6. Coefficient estimates used in the calculation are from Model 6. A typical increase for union membership was 0.98, corporate tax rate 0.43, and welfare spending per capita 0.14.

[17] A typically observed increase for incentive spending was $139 per capita, while a typical increase in union membership was 0.98 percentage points, a typical increase in welfare spending was $147 per capita, and a typical increase in corporate tax rate was 0.43 percentage points.

year change in the variable to one standard deviation above the mean year-over-year change.[18] These are plotted in Figure 3.

[Figure 3 about here]

Figure 3 shows the estimated change in inequality over a five-year period for typically observed increases in each independent variable. It is clear that the inequality increasing effect of incentive spending is felt for several years after incentives are awarded. In Year 0, i.e. the same year in which incentives spending increases, produces a positive but small effect on post-transfer income inequality. In Year 1, there is a spike in the Gini coefficient of about .003. This effect remains in years to follow, although it wanes rather rapidly. By Year 4, the positive, long-run effect has nearly zeroed out.

The exacerbating effects of typical increases in incentive spending greatly outweigh the inequality-mitigating effects of typical increases in the other variables. The inequality reducing effect of increased union membership is quite large in Year 0 but quickly decreases, becoming smaller than incentive spending in Year 1 and waning Years 2-4. The effect of the corporate tax rate is on par with the effect of increased incentive spending in Year 0, but is quite smaller in Year 1 and then decays rapidly. The effect of welfare spending follows a similar pattern to corporate tax rate, although the effect in Year 0 is much smaller and the effect in Year 1 is the only effect size that approaches that of incentive spending.

The big takeaway is that state governments, by mixing and matching these policies, are actually both exacerbating and mitigating inequality with lasting effects for several years. If

[18] This quantity of interest was chosen over the more typical change from one standard deviation below the mean to above the mean because changes this size are actually very rare. In fact, changes that size have happened just once for union membership from 1999-2014, and never for corporate tax rates and welfare spending, although it is more common more common for incentive spending (17 times as noted above) than the other variables. Should states decide to greatly increase corporate tax rates and spending, or encourage union membership, they are likely to mitigate inequality much more so than a large incentive package exacerbates inequality. In practice, though, states have opted for big changes in incentive spending over big changes in other policies.

states follow the pattern they typically have, which is one of using large incentive packages to recruit new firms while making incremental changes to labor, tax, and welfare policy, then states will grow the gap between rich and poor. Rarely do lawmakers consider these tradeoffs when competing for investment from Amazon, GM, Tesla, or others.

[Figure 4 about here]

Using this distributed effects pattern, one can calculate how different states have affected income disparity through incentive spending over the long-run. Figure 4 shows the estimated distributed effect of incentive spending using the same exemplar states from Figure 2.[19] Taking Indiana and Ohio as a pair, as they are two similar industrial Midwestern states, we see that Indiana was consistently a high incentive spending state, while Ohio is consistently a more moderate spender. The estimated effect of spending on inequality spiked in each year following increases in spending, but never fully returned to zero. That is, sustained high or moderate spending is estimated to lead to high or moderate sustained exacerbation of inequality, with the largest effects coming the year after spending increases. Colorado and Oregon, two western states of similar size, ideology, and economy, typically spent less than Indiana and Ohio with the exception of a few large spikes in spending in select years in Oregon.[20] Colorado had relatively low per capita incentive spending from 1999-2014. As a result, there were only small jumps in inequality, with the largest spike coming in 2012, the year after a relatively large (for Colorado) increase in spending in 2011. This effect did not fully decay as additional spending was added in the following years and the effect of this new spending combined with the lasting effect of

[19] The estimated distributed effects were calculated for each year for each state using the same formula in footnote 15, but instead substituting the amount of per capita incentive spending for each year for qi. This was then plotted against per capita spending totals in Figure 4. The distributed effects for 1999-2003 contain less information because of the five-year window needed to estimate the full distributed effect.

[20] These spikes corresponded with the awarding of large incentive packages to Intel, Google, and Nike in 1999, 2005, 2012, and 2014.

spending in 2011. But, an early spike in spending in 2006 resulted in a small jump in inequality that waned to zero by 2011. Yet, the effect of Colorado's modest spending is several orders of magnitude smaller than Oregon. Oregon's higher sustained spending since 2007, and spikes in spending in 2005 and 2012, led to greater exacerbation of inequality that never fully decayed to near zero as in Colorado.

Discussion and Conclusion

In all, there are strong results in support of the post-transfer hypothesis. Both models, and all alternative models, of the post-transfer Gini provided evidence that increased incentive spending at *t-1* led to increased post-transfer inequality at *t*, robust to the inclusion of a number of possible confounders. There are suggestive but weaker results for the pre-transfer hypothesis. The models show a consistently positive effect of increased incentive spending at *t-1* led to increased post-transfer inequality at *t,* although the significance level drops to $p<.1$ with the inclusion of demographic controls. There are much weaker results for the market hypothesis, and it is not possible to conclude that incentives affect inequality by buoying the incomes of the wealthy prior to taxes and transfers based on this analysis. Rather than market conditioning, the results show that the primary mechanism through which incentive spending exacerbates inequality is redistributive. Specifically, incentives serve to redistribute resources to the relatively wealthy and reduce the capacity of the state to redistribute to the relatively poor over the long-term.[21] This is consistent with a story of retrenchment; as states whittle down their tax base by providing incentives for businesses, the conditions are created for stagnating redistribution to middle and low income people and increased direct benefits for high income

[21] It is also important to note that, in general, there was a lack of significant findings on short-run coefficients, but this is typical for the study of state-level income inequality because of the complexity of state economies (e.g. Kelly and Witko 2012; Hayes and Medina Vidal 2015).

people. Thus, one of the contributions of this study is that it helps separate and test the mechanisms through which economic development policy may affect inequality. The results are consistent with arguments made by Langer (2001) and Wang et al (2018) and helps to bolster a literature unclear on whether and why economic development efforts increase inequality. The results also speak to the literature showing little redistributive effect of state-level welfare policies on income inequality (e.g. Barrilleaux and Davis 2003). States do have a large impact on inequality via redistribution if one considers the long-run effect of economic development on inequality.

Another contribution is demonstrating that how the estimated effect of incentives on increasing inequality compares to the effect of other state policies. Increased corporate income tax rates and unionization rates help to mitigate inequality, but states pursuing combinations of these with robust incentive spending may be washing out a substantial portion of their efforts to combat growing inequality.

Yet, one of the necessary limitations of this study is not breaking incentive spending into entrepreneurial economic development spending and locational economic development spending. Doing so would more closely mirror the approaches taken by Langer (2001) and Young (2016) who propose that the effect of economic development policy on inequality depends on whether states emphasize the entrepreneurial approach or locational approach. One of the strengths of this study is its use of the large Good Jobs First incentive spending database which has hundreds of thousands of individual incentive awards across hundreds of programs across fifty states. But these data are not coded into the scholarly entrepreneurial-locational dichotomy. Doing so would be a herculean effort given the number of observations. It is possible that future research could divide spending on whether it was meant to grow new, small

businesses (entrepreneurial) or attract established, large businesses (locational). But, scholars should be cautious before taking on such a large effort. More recent research on economic development policy has shown that states no longer think about economic development in dichotomous terms. Rather, a new 'all of the above' approach has dominated economic development decision making, in which states incent firms to expand using any tool possible (Eisinger 1995; Hanley and Douglass 2014; Jansa 2016).

Given these findings, it is important to recognize that economic development is a critical area of policy that has been understudied by scholars seeking to understand the political roots of income inequality. While scholars have focused on how states use wage and welfare policies to address growing concern over inequality, and the effects of these policies, much less attention has been paid to the effects of economic development efforts on inequality. Given incentives are a central focus of state governments, and the results here identify a positive relationship and causal mechanism for incentives' exacerbation of inequality, scholars should incorporate economic development efforts into models of redistribution and income inequality in future studies.

These results also speak to the sometimes controversial use of incentives by states to spur economic development. For example, in November 2018, the State of New York and New York City awarded a joint incentive package worth about $3 billion to Amazon to support construction of their second headquarters in Queens. While Democratic Governor Andrew Cuomo claimed a 9 to 1 return on investment, critics cited an undemocratic process that gave numerous tax benefits and other privileges to the most valuable company in the world. Some critics even cited the potential for increased economic inequality as a result of the deal, as New York Times opinion writer David Leonhardt said "For decades, local politicians have felt pressure on only

one side of this issue: To do whatever it takes to attract companies. As a result, those politicians have contributed, often unwittingly, to the radical rise in economic inequality" (2019). The results of this study speak to these intuitions: increased incentive spending does lead to increased economic inequality by forgoing taxes on wealthy firms.

Together with the numerous studies showing that, on average, there is little to no net wage or job growth stemming from incentives (e.g. Buss 2001), we begin to see a landscape in which there are potential benefits and considerable risks associated with awarding incentives. As incentive spending has boomed across the states over the past decade and a half, the focus of elected officials has predominately been on the benefits. Governors from the conservative and liberal ends of the political spectrum, such as Scott Walker and Andrew Cuomo, cite big returns on investment as their reason for using incentives to attract businesses to the state (Ivanova 2018; Seitz 2018). But, research increasingly shows that making incentives work for citizens, and not just top firms, means careful consideration of the benefits and the risks, especially when awarding large incentive packages. One of the risks is increased income disparity, which itself can hamper economic growth and limit the potential benefits of economic development efforts.

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Tables and Figures

Figure 1: Average Yearly Incentive Spending Per Capita by State, 1999-2014

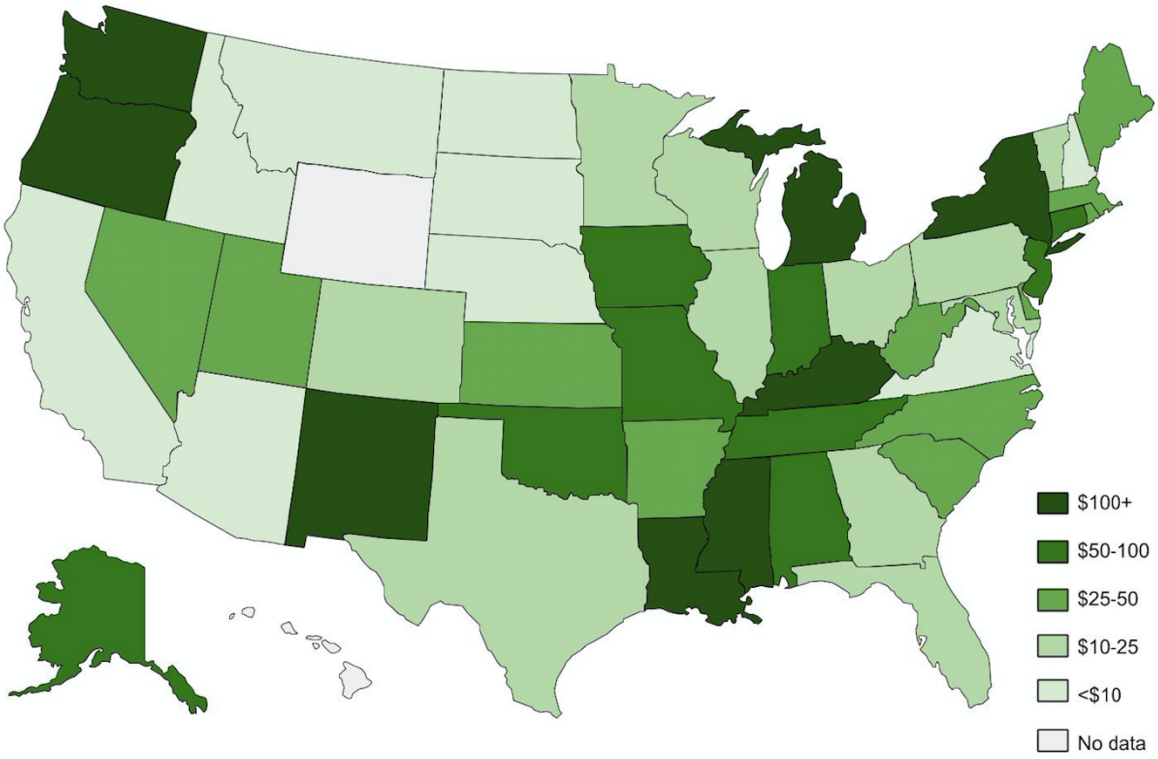
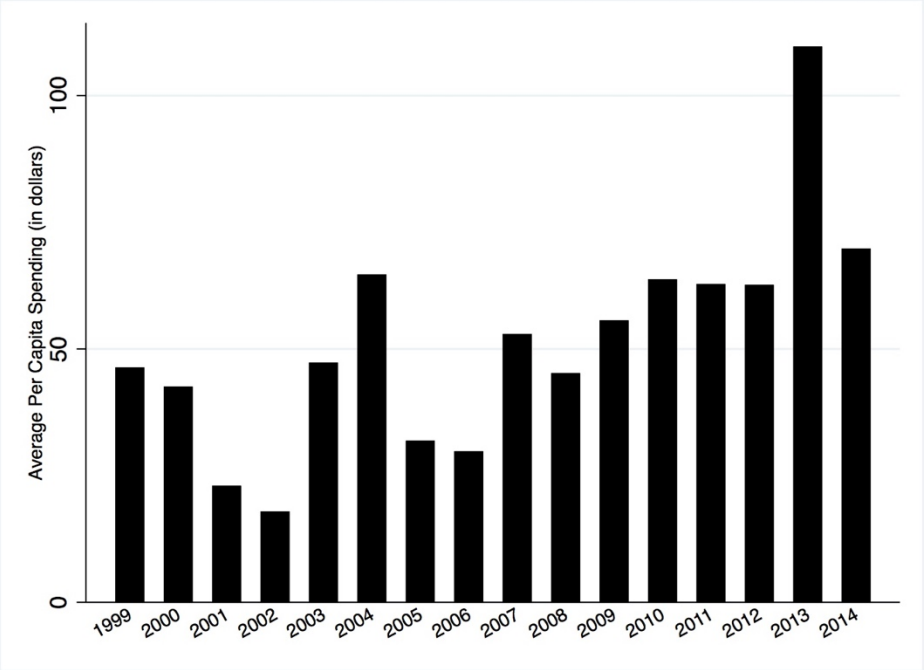
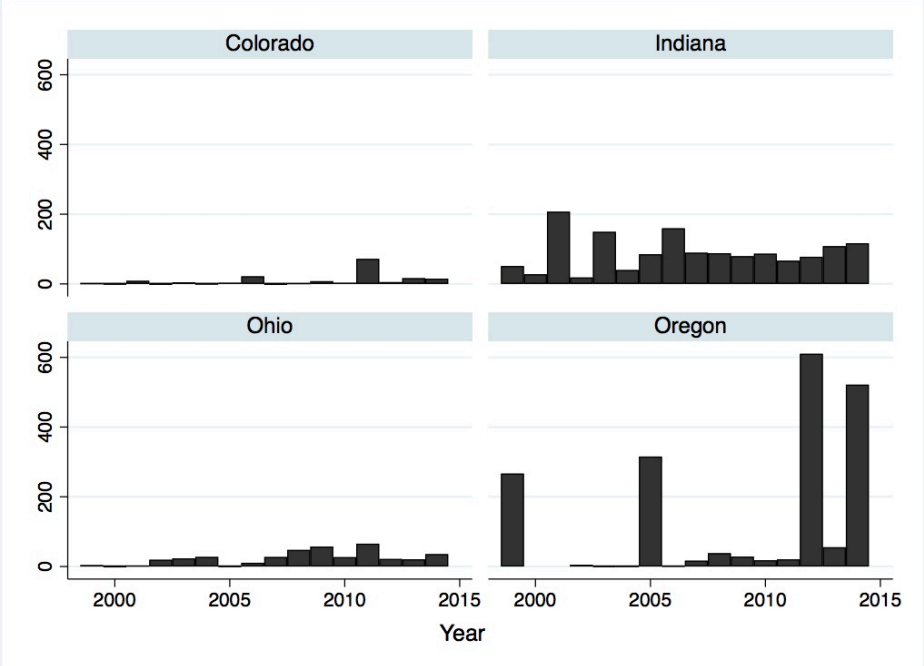


Figure 2: Average Per Capita Incentive Spending by State Governments, 1999-2014



(a) Average Spending Across All States, By Year



(b) Spending in Four States, By Year

Table 1: Variable Definitions and Descriptive Statistics

	Definition	Source	Mean	Std. Dev.	Min.	Max.
Top Decile Income Share	Percentage of pre-tax, pre-transfer income accrued by the top 10 percent of earners in each state in each year. Calculated using IRS data on AGI by tax unit.	Frank, Sommellier, Price, Saez (2015)	44.1	5.05	32.9	62.2
Pre-Transfer Gini	Gini coefficient using after-tax household incomes in each state, excluding income from public programs.	Kelly and Witko (2012); Bucci (2018)	.501	.031	.419	.627
Post-Transfer Gini	Gini coefficient using after-tax household incomes in each state, including income from public programs	Kelly and Witko (2012); Bucci (2018)	.446	.025	.380	.572
Per Capita Incentive Spending	Total spent on incentives to firms by state governments. Measured in thousands of dollars. Inflation-adjusted to 2014 dollars. Divided by the state's population.	Calculated by the author using Good Jobs First (2015) data	.054	.133	.000	1.49
Union Membership	Percentage of the state population that belongs to a labor union in the private sector.	Hirsch and MacPherson (2003), updated to 2014	6.97	3.57	1.10	16.7
GSP	Gross state product in trillions of dollars.	U.S. Bureau of Economic Analysis	.269	.326	.017	2.22
Unemploy-ment Rate	Percentage of the population that is unemployed.	U.S. Bureau of Labor Statistics	5.84	2.05	2.30	13.6
Minimum Wage	Nominal dollar value of the state's minimum wage	U.S. Department of Labor	6.27	1.20	2.65	9.32
Nonwhite Population	Proportion of the population that is a race or ethnicity other than White-Non-Hispanic.	U.S. Census Bureau	25.1	13.5	2.37	61.0
Elderly Population	Proportion of the population that is 65 years old or older.	U.S. Census Bureau	12.0	2.84	3.67	18.6
Welfare Spending	Per capita direct payments to individuals through public welfare programs. Measured in thousands of dollars.	Urban Institute and U.S. Census Bureau	1.26	.457	.402	3.00
Corporate Tax Rate	Top marginal tax rate applied to corporate income in each state.	Book of the States	6.86	2.85	0.00	12.0
Income Tax Rate	Top marginal tax rate applied to individual income in each state.	Tax Foundation	5.21	2.89	0.00	14.1
Government Ideology	NOMINATE score averaged across state legislative chambers and governor and scaled from 0 to 100. Higher scores indicate more liberal governments.	Berry et al (1998), updated to 2014	48.1	25.7	0.00	92.4

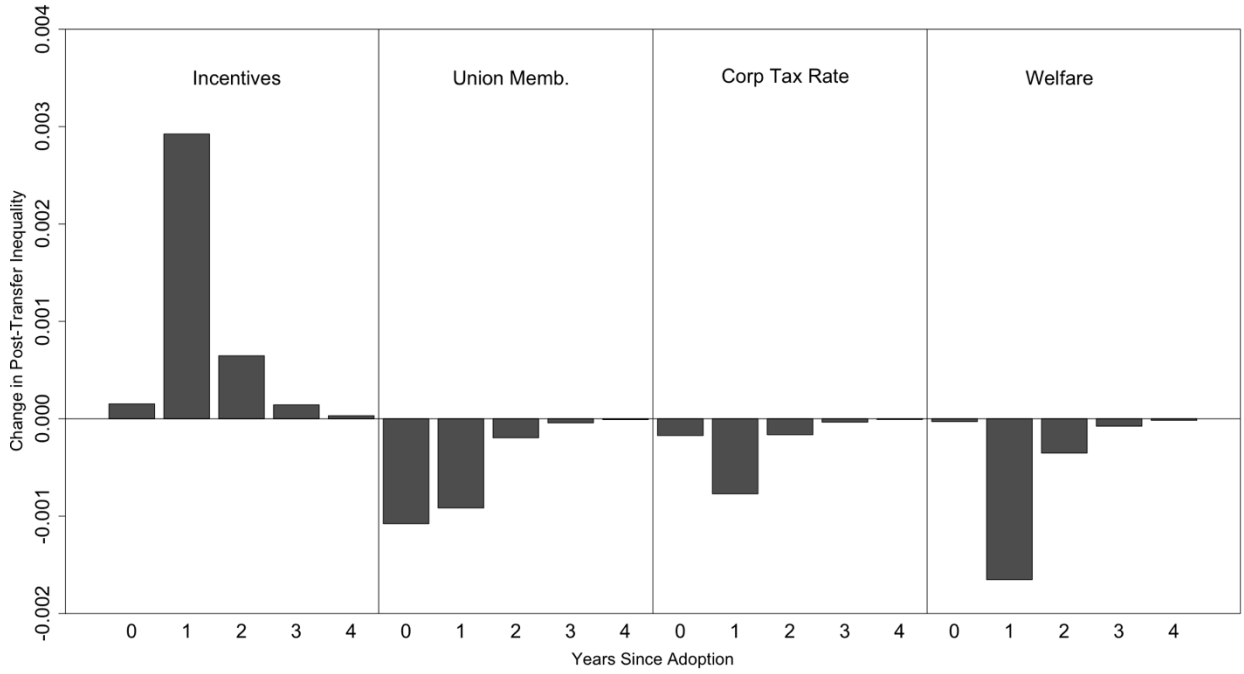
Note: Each variable is measured for each year and each state. Hawaii and Wyoming excluded for lack of incentive spending data.

Table 2: Effect of Per Capita Incentive Spending on Income Inequality, 1999-2014

	(1) Δ Income Share	(2) Δ Income Share	(3) Δ Pre-Trans. Gini	(4) Δ Pre-Trans. Gini	(5) Δ Post-Trans. Gini	(6) Δ Post-Trans. Gini
Lagged DV	-0.4806***	-0.7050***	-0.6248***	-0.7563***	-0.6924***	-0.7787***
	(0.0596)	(0.0822)	(0.0430)	(0.0559)	(0.0546)	(0.0605)
Δ Per Cap. Incentives	-0.0495	-0.1966	-0.0049	-0.0046	0.0006	0.0011
	(0.5341)	(0.6172)	(0.0054)	(0.0055)	(0.0046)	(0.0042)
Per Cap. Incentives$_{t-1}$	1.9545*	0.9129	0.0155*	0.0130+	0.0224***	0.0219***
	(0.7340)	(0.7036)	(0.0066)	(0.0067)	(0.0042)	(0.0044)
Δ Union Memb.		-0.1425		-0.0008		-0.0011
		(0.1094)		(0.0007)		(0.0007)
Union Memb.$_{t-1}$		-0.1988*		-0.0012		-0.0018*
		(0.0946)		(0.0008)		(0.0008)
Δ GSP		13.5645*		0.0153		0.0043
		(5.3709)		(0.0246)		(0.0215)
GSP $_{t-1}$		4.0796***		0.0000		0.0101
		(0.9883)		(0.0111)		(0.0119)
Δ Unemp. Rate		-0.7735***		-0.0002		-0.0006
		(0.1411)		(0.0009)		(0.0009)
Unemp. Rate $_{t-1}$		-0.0663		0.0013		0.0007
		(0.0892)		(0.0008)		(0.0008)
Δ Govt. Ideology		-0.0036		0.0000		0.0000
		(0.0060)		(0.0001)		(0.0001)
Govt. Ideology $_{t-1}$		-0.0096*		0.0000		-0.0000
		(0.0042)		(0.0001)		(0.0001)
Δ Nonwhite Pop.		0.7509**		-0.0004		0.0010
		(0.2336)		(0.0017)		(0.0016)
Nonwhite Pop. $_{t-1}$		0.1091		-0.0002		0.0009
		(0.0963)		(0.0009)		(0.0008)
Δ Elderly Pop.		-0.0871*		0.0029***		0.0009+
		(0.0415)		(0.0005)		(0.0005)
Elderly Pop. $_{t-1}$		-0.1601**		0.0025***		0.0012*
		(0.0557)		(0.0005)		(0.0005)
Δ Min. Wage		0.2435		-0.0010		0.0005
		(0.1805)		(0.0026)		(0.0018)
Min. Wage $_{t-1}$		0.2650		-0.0037*		-0.0016
		(0.1685)		(0.0017)		(0.0017)
Δ Corp. Tax				-0.0002		-0.0004
				(0.0009)		(0.0011)
Corp. Tax$_{t-1}$				-0.0016***		-0.0021***
				(0.0005)		(0.0005)
Δ Income Tax				0.0012		0.0010
				(0.0013)		(0.0014)
Income Tax$_{t-1}$				-0.0011		-0.0001
				(0.0014)		(0.0015)
Δ Welfare						-0.0002
						(0.0080)
Welfare$_{t-1}$						-0.0114+
						(0.0066)
Constant	21.6898***	29.5812***	0.3132***	0.3950***	0.3104***	0.3560***
	(2.6798)	(3.9167)	(0.0215)	(0.0316)	(0.0244)	(0.0300)
N	528	525	528	525	528	525
Within R^2	0.24	0.50	0.32	0.47	0.38	0.41

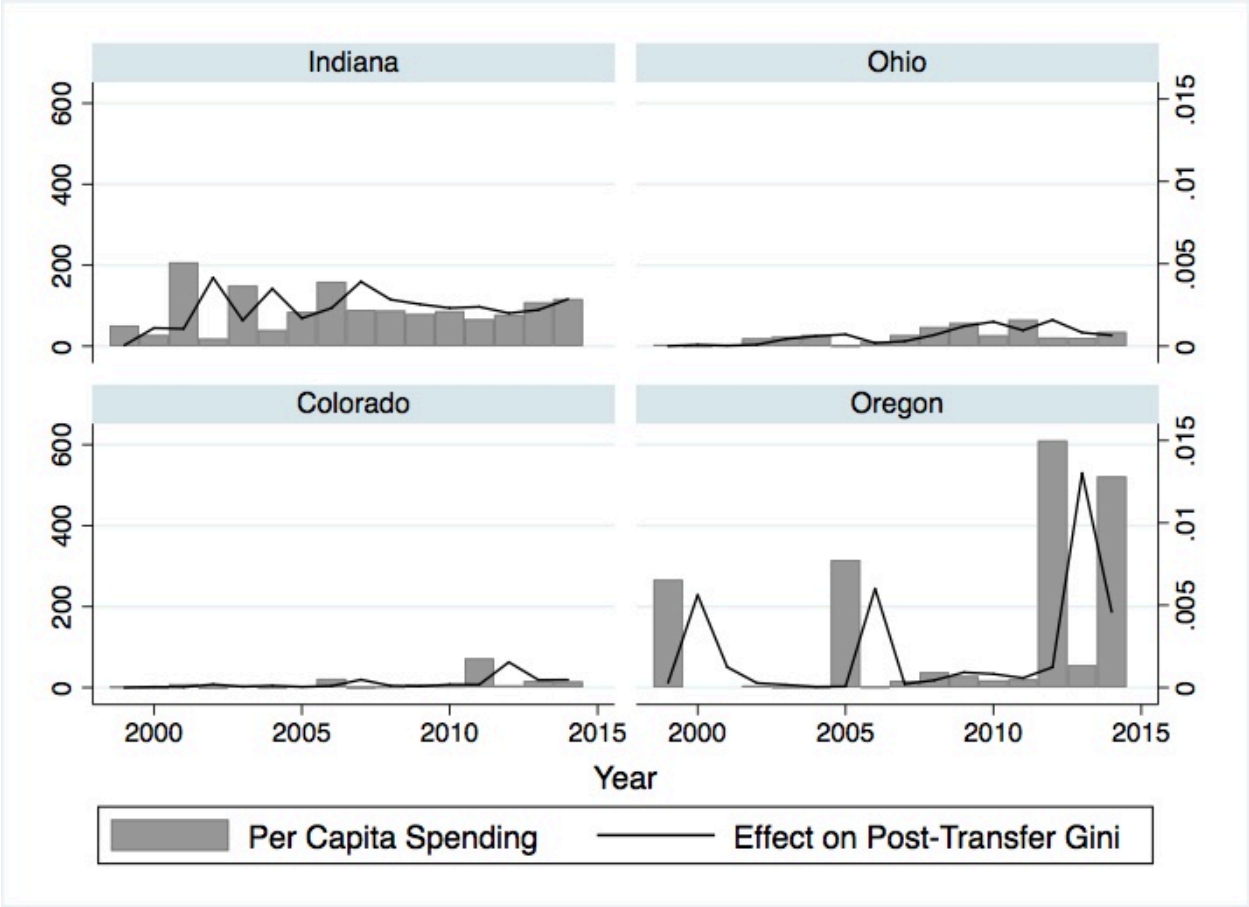
Robust clustered standard errors in parentheses $^{+}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Figure 3: Distributed Effect of Typical Change in Four Policies on Post-Transfer Inequality



Note: The effects plotted here were generated by increases in the independent variable equal to a change of from the mean year over year change to one standard deviation above the mean.

Figure 4: Estimated Distributed Effect of Incentives on Inequality in Four States



Note: The left y-axis is per capita spending in dollars. The right y-axis is the size of the change in the post-transfer Gini coefficient.