Law & Society REVIEW

Jurisdiction, Crime, and Development: The Impact of Public Law 280 in Indian Country

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Public Law 280 transferred jurisdiction over criminal and civil matters from the federal to state governments and increased the extent of nontribal law enforcement in selected parts of Indian country. Where enacted, the law fundamentally altered the preexisting legal order. Public Law 280 thus provides a unique opportunity to study the impact of legal institutions and their change on socioeconomic outcomes. The law's controversial content has attracted interest from legal scholars. However, empirical studies of its impact are scarce and do not address the law's endogenous nature. We examine the law's impact on crime and on economic development in U.S. counties with significant American-Indian reservation population. To address the issue of selection of areas subject to Public Law 280, our empirical strategy draws on the law's politico-historical context. We find that the application of Public Law 280 increased crime and lowered incomes. The law's adverse impact is robust and noteworthy in magnitude.

A predictable and stable legal system, by securing the rule of law, promotes economic development (see, e.g., Hayek 1960; Posner 1998). In contrast, perplexing laws and unpredictable law enforcement hinder progress. How do drastic changes to the preexisting legal order, which decrease legal predictability, affect economic and social outcomes? What happens when legal institutions are imposed on a society that is not necessarily ready to adopt them?

For helpful comments and discussion we thank Randall Akee, Sam Allen, Sofia Amaral-Garcia, Dominic Parker, Darrell Glaser, Joshua Hill, Noel Johnson, Miriam Jorgensen, Harvey Markowitz, Peter Murrell, Tinni Sen, Katie Shester, Thomas Stratmann, participants of the annual meetings of the International Society for New Institutional Economics, the European Association of Law and Economics, the Society for Government Economists, and Southern Economic Association, seminar participants at Virginia Military Institute and George Mason University, three anonymous referees of this journal, and the editors Timothy Johnson and Joachim Savelsberg. We also thank Bill Johnson for excellent research assistance.

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Law & Society Review, Volume 48, Number 1 (2014)

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

This article attempts to shed light on these questions by examining the consequences of a particular law—Public Law 280 (PL280)—on socioeconomic outcomes. PL280 fundamentally changed the legal regime in areas with an American-Indian reservation population. Providing both cross-sectional and time variation in institutions and outcomes within one country, the adoption of PL280 and its consequences offer a fertile ground for empirical research on the impact of institutions and their change (see, e.g., Anderson & Parker 2008; Cookson 2010, 2012; Parker 2012).[1]

Congress passed PL280 in 1953. The law transferred jurisdictional authority over criminal and civil matters from the federal government to the states, and expanded state jurisdiction beyond the scope of federal jurisdiction prior to the enactment of the law (Deloria & Lytle 1983; Goldberg, Champagne, & Singleton 2008), in selected parts of "Indian country." The change of jurisdiction disrupted the functioning of the legal system in the impacted areas, resulting in a "chaotic allocation of law enforcement authority" (Clinton 1976: 504–05). Moreover, until the law was amended in 1968, state jurisdiction could be extended over Indian tribes without their consent, encroaching on tribal sovereignty. President Eisenhower, in fact, "expressed 'grave doubts as to the wisdom of certain provisions'. . . . He criticized the failure to include 'a requirement of full consultation in order to ascertain the wishes and desires of the Indians' " (Herzberg 1978: 157).

Legal scholars have expressed much interest in PL280 and its possible long-term consequences (Champagne & Goldberg 2013; Goldberg & Champagne 2006; Goldberg, Champagne, & Singleton 2008; Goldberg-Ambrose 1997; Herzberg 1978; Jiménez & Song 1998; Leonhard 2012; Twetten 2000). However, empirical literature on the impact of PL280 is limited to less than a handful of contributions (Anderson & Parker 2008; Cookson 2010, 2012; Parker 2012). In particular, a report by Goldberg, Champagne, & Singleton (2008: 18) suggests that no systematic empirical research exists on the effect of PL280 on crime, even though one of the ostensible goals of PL280 was to secure law and order (Goldberg-Ambrose 1997: 50).

This article fills the gap in the literature by empirically assessing the effect of PL280 on crime, as well as on economic development. PL280 might have had a detrimental effect on socioeconomic outcomes for several reasons. While PL280 introduced concurrent jurisdiction between state, tribal, and in some instances federal

[1] Anderson and Lueck (1992), Vinje (1996), Cornell and Kalt (2000), Pickering and Mushinski (2001), Evans and Topoleski (2002), Dippel (2011), and Akee, Jorgensen, and Sunde (2012) empirically examine the determinants of economic development of American Indians and emphasize institutional factors, but do not focus on PL280.

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

authorities (Jiménez & Song 1998), and expanded nontribal law enforcement and criminal justice (Goldberg & Champagne 2006: 701), the law was limited in scope and contained ambiguities. PL280 thus created legal "gaps and vacuums" (Goldberg, Champagne, & Singleton 2008: 11) leading to "confusion and lack of clarity" (ibid.: 399) about jurisdiction and law enforcement responsibilities. The law also decreased funding for the tribes and did not provide additional funding for the states despite the states' expanded jurisdiction. This directly decreased resources for combating crime (Goldberg & Champagne 2006; Leonhard 2012; Twetten 2000). Finally, because PL280 resulted in "greater control at the state and local government level, and less control at the tribal and federal level" (Goldberg, Champagne, & Singleton 2008: 6), it compromised the tribes' ability to develop their own effective institutions for dealing with social issues on reservations (Goldberg & Champagne 2006).

To examine the impact of PL280, we use Census data on U.S. counties with a significant American-Indian reservation population. Ideally, we would draw on data at the level of the American-Indian reservations. However, reservation-level data on crime and income are either nonexistent or not consistently available. Nevertheless, given the states' "unfunded mandate" to extend their law enforcement responsibilities to the reservations, and spatial spillover effects of crime and economic activity, we expect to detect the law's effect at the level of counties.

We first test the effect of PL280 on the incidence of crime in 1981, the earliest year after the last states adopted PL280 for which extensive data are available. At the same time, the year 1981 captures the period before the emergence of organized tribal law enforcement agencies (Goldberg & Champagne 2006: 705) and casinos (see, e.g., Anderson 2013; Cookson 2010; Evans & Topoleski 2002; Pickering 2004), which could obscure the impact of PL280.

Historical evidence suggests that Congress' choice of initial areas where PL280 would apply was based, inter alia, on considerations of weak law enforcement apparatus in Indian country and the "readiness" of tribes to assimilate (House of Representatives Report No. 848, 83rd Congress, 1st Session; H.R. Report No. 848, in short). Ordinary-least-squares (OLS) estimates of the effect of PL280 could therefore be biased. We thus explore an instrumental variable approach that draws on the politico-historical context surrounding PL280's enactment. Our results indicate that the implementation of PL280 increased the occurrence of crime, an effect that is both statistically and economically significant.

Crime increases uncertainty, discourages investment, reallocates resources away from their efficient use, and, thus, adversely

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

affects economic activity. Hence, we also analyze the effect of PL280 on economic development. The only existing article on this issue is the work of Anderson and Parker (2008) who view PL280 as "a natural experiment" (ibid.: 642) and argue that by providing for stable contract enforcement, the PL280-induced transfer of *civil* jurisdiction spurred economic growth. Our approach differs notably from theirs. We construct a panel dataset of U.S. counties with a significant American-Indian reservation population, capturing the time periods both before and after PL280's enactment. The panel structure facilitates a fixed effects framework and the use of dynamic panel methods, enabling us to address problems of endogeneity. Also in contrast to Anderson and Parker (2008) whose outcome of interest is economic growth, we use median family income to measure the *level* of economic development. Using an income-based outcome variable to proxy for the level of economic development is consistent with the most common approach in recent empirical analyses examining the causal effects of institutions (see, e.g., Acemoglu & Johnson 2005; Acemoglu, Johnson, & Robinson 2001).

We find that PL280 status is robustly negatively associated with median family income. Our results resonate with the existing body of legal scholarship that has long been pointing to PL280's negative socioeconomic effects (see, e.g., Goldberg 2010; Goldberg & Champagne 2006; Goldberg, Champagne, & Singleton 2008; Goldberg-Ambrose 1997; Herzberg 1978; Jiménez & Song 1998; Leonhard 2012; Twetten 2000). With its "near elimination of exclusive tribal authority over a range of less serious offenses by tribal members" (Goldberg, Champagne, & Singleton 2008: 6), PL280 has been "viewed by many as an infringement on inherent sovereignty of affected tribes" (ibid.: 447). Our results are consistent with this emphasis on the beneficial role of autonomy and sovereignty for economic outcomes and development (see, e.g., Bockstette, Chanda, & Putterman 2002).

Our findings, however, are in contrast with those of Anderson and Parker (2008). Aside from the basic differences in research design (see above) and our emphasis on PL280's endogenous nature, the discrepancy between ours and Anderson and Parker's results could be attributed to the different time periods under scrutiny. Specifically, unlike our work, Anderson and Parker (2008) focus solely on the time period beginning nearly two decades after PL280's enactment. Their analysis includes decades when the casino industry gained impetus in Indian country. Any commercial benefits from greater stability of contractual enforcement under PL280-induced state jurisdiction were likely greatest in those decades. Thus, Anderson and Parker's finding of a positive association between reservation per capita income growth and PL280-

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induced state jurisdiction need not be in direct conflict with our finding given that we focus on the pre-casino era.

Finally, our article contributes to the sparse empirical literature examining the consequences of institutional transplantation (Acemoglu et al. 2011; Berkowitz, Pistor, & Richard 2003a, 2003b; Lambert-Mogiliansky, Sonin, & Zhuravskaya 2007; Pistor, Raiser, & Gelfer 2003). Developing countries filling an institutional vacuum, or improving existing, frequently deficient, institutions are faced with a choice between developing new institutions indigenously and transplanting from abroad (Grajzl & Dimitrova-Grajzl 2009; Mukand & Rodrik 2005). In the legal domain, an institutional transplant is the "borrowing or importing of legislative methods, concepts, approaches or even statutory language" from another jurisdiction (Newton 2003). Transplants can also be externally dictated, as in the case of loan conditionality and colonialism. Although transplants can save on costs of institution building, foster economic activity (e.g., by attracting foreign investment), and even provide the necessary legal authority (Buscaglia, Gonzalez-Ruiz, & Ratliff 2005; Miller 2003; Posner 1998; Watson 1996), historical experience has shown that transplants are not necessarily "receptive" because of a possible mismatch with the receiving jurisdiction's local conditions and due to a lack of legitimacy (Berkowitz, Pistor, & Richard 2003a, 2003b; Miller 2003).

PL280 may be viewed as an externally dictated transplant of jurisdictional authority: The law not only transferred authority from the federal to state governments without the consent of American-Indian tribes, but also expanded the scope of state jurisdiction over tribal affairs and imposed a new paradigm on a subset of American-Indian reservations. Where PL280 was adopted, the "indigenous paradigm," promoting a nonantagonistic approach to adjudication and emphasizing tribal cohesion, was replaced with the "American paradigm" of justice, which emphasized the adversarial nature of adjudication and a more fragmented view of the world (Pecos Melton 1995). The transplant of jurisdictional authority under PL280 profoundly affected the functioning of legal institutions in the impacted areas of Indian country. Given our assessment of the law's adverse impact on crime and economic development, the implementation of PL280 is thus best viewed as an unsuccessful institutional transplant.

The rest of the article is organized as follows. We first provide an overview of PL280 and its historical and political context. We then draw on the existing legal scholarship to discuss the consequences of the law and state our hypotheses regarding the law's impact on crime and on economic development. In the following sections, we develop our empirical strategy, present the results, and discuss the implications.

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

PL280

Jurisdiction over Indian Country in Historical Context

At the start of colonization and settlement in North America, American-Indian tribes were viewed as legitimate political entities that could negotiate with European colonial powers through treaties. Continuing that tradition, the United States signed a number of agreements with tribes during the period between the founding of the nation and 1871, when the practice of signing treaties with tribes was explicitly banned by Congress (Richland & Deer 2004: 59). Many of these treaties dealt with jurisdiction over crimes committed by Indians against non-Indians and vice versa. A number of treaties explicitly recognized "the power of tribes to exercise criminal jurisdiction over non-Indian citizens of the Unites States" (Leonhard 2012: 7). From 1817 onward, however, a number of treaties limited tribal jurisdiction over non-Indians (Leonhard 2012: 8–9). Notably, in the 1830s, the legal status of Indian tribes changed from one of complete sovereignty to one of "dependent nations with limited sovereignty and the right to occupy and use their original land" (Richland & Deer 2004: 58). The period between 1835 and 1887 witnessed the continuous removal of American-Indian tribes from the Eastern territories and the creation of Indian reservations.

The establishment of Indian reservations gave rise to the notion of "Indian country," which provides the basis for understanding jurisdiction in Indian Law. Indian country refers to

> (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. (Indian Country Statute, 18 USC § 1151)

After 1871, Congress dealt with Indian affairs by adopting new legislation instead of signing treaties. The Major Crimes Act of 1885 delineated federal jurisdiction over serious crimes in Indian country (Clinton 1976). This Act represented a "significant incursion on tribal sovereignty in a manner inconsistent with the development of federal Indian criminal law during the treaty period" (Leonhard 2012: 12). As such, the Act foreshadowed the assimilationist agenda of the Termination Period (see below).

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Enactment of PL280

In 1953, Congress enacted PL280 which first shifted jurisdiction over criminal and civil matters in Indian country from the federal government to state governments and, second, expanded "the reach of nontribal law enforcement and criminal justice on reservations" (Goldberg, Champagne, & Singleton 2008: 3). This jurisdictional change was mandatory for five states: California, Minnesota, Nebraska, Oregon, and Wisconsin.[2] Importantly, the change of jurisdiction occurred without tribal consent, despite debates in Congress about the issue of consent prior to 1952:

> One omission was prominent: the bill did not contain a tribal consent provision. The tribes in the named states could not block the transfer. In a like manner, the unnamed states could unilaterally assume jurisdiction over the Indian country within their borders; the tribes had no right to veto the transfer; the bill did not even require that they be consulted; and the federal government need not approve of the states' actions. In this respect, the bill was similar to the one President Truman had criticized and vetoed. President Eisenhower was not pleased with the Act, but he signed it. (Herzberg 1978: 157)

In addition to being imposed on the "mandatory" states, PL280 allowed all other states to voluntarily assume jurisdiction in Indian country. Between 1953 and 1968, a number of "optional" states adopted PL280. These states fall into two categories: states with disclaimers in their constitutions limiting state jurisdiction over Indian country and states without disclaimers limiting state jurisdiction. The latter could adopt PL280 in a straightforward manner. The former, however, needed to amend their constitutions in order to adopt PL280.[3] Surprisingly, a number of states with disclaimers did not amend their constitutions before adopting PL280. The lack of amendments resulted in lawsuits challenging the jurisdictional transfer (Gardner & Pecos Melton 2004). In 1979, however, the Supreme Court ruled in *Washington v. Yakima Indian Nation* that disclaimer states are not required to amend their constitutions in order to assume jurisdiction.

[2] Alaska was added when it officially became a state.

[3] Oklahoma is a special case. The exact legal status of most Indian reservations in Oklahoma is unclear. Oklahoma was offered the option to adopt PL280. However, at the time, the state declined the offer assuming it already had jurisdiction over Indian country; this turned out to be an incorrect assumption (Tinker 2011: 135). Yet, by the time the state realized that it did not possess jurisdiction after all, the 1968 law on self-determination had been passed and the state could not assume jurisdiction without the tribes' consent (ibid.). Oklahoma, therefore, never adopted PL280. In our empirical analysis, we exclude Oklahoma from the sample. None of our results change with the inclusion of Oklahoma in the sample (see our sensitivity analysis results).

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

In 1968, because of a significant backlash against the original content of PL280, an amendment (under the Indian Civil Rights Act) was passed requiring states to obtain tribal consent before adopting PL280. This amendment also allowed states to initiate retrocession of jurisdiction back to the federal government (Goldberg 2010: 1046). "Although Indian nations were not given control over this process, they have been in a position to lobby their state legislatures to support this 'retrocession' of jurisdiction" (ibid.: 1046–47). The process of lobbying with the state for retrocession has presented many political obstacles and has been quite "formidable" for the tribes (Goldberg & Champagne 2006: 723). To date, retrocessions have occurred in several tribes and no tribe consented to adopting state jurisdiction under PL280 after the 1968 amendments (Goldberg 2010: 1047).

Table A1 in the Online Appendix[4] presents a detailed list of all mandatory and optional states that adopted PL280, the year of adoption, and, if applicable, the year of retrocession.

Political Context of PL280

According to official government documents, an important motivation for Congress in considering the promulgation of PL280 was weak law enforcement apparatus on reservations (H.R. Report No. 848). A careful inspection of the law's well-documented political context, however, reveals that it is unlikely that states were indeed selected to enact PL280 solely or primarily because of lawlessness. Political considerations reflecting the general spirit of the era seem to have been at least as important.

In fact, at the beginning of the lawmakers' deliberations, the focus was solely on the state of California where tribes had specifically expressed willingness to assimilate and to do away with the Bureau of Indian Affairs and with federal jurisdiction (Herzberg 1978: 155). Tribes that were strong enough to effectively lobby against PL280 were not included in the initial set of areas mandated to adopt the law (Goldberg, Champagne, & Singleton 2008: 3). Three notable exceptions to PL280 adoption in the "mandatory" states—the Red Lake Reservation in Minnesota, the Menominee Reservation in Wisconsin, and the Warm Springs Reservation in Oregon—successfully lobbied against the law and, consequently, were not subject to state jurisdiction.[5]

[4] http://home.wlu.edu/~grajzlp/PL280-Online-Appendix.pdf

[5] In 1954, Congress passed the Termination Act (Public Law 108), which, effective as of 1961, abolished the Menominee Reservation. According to Kowalkowski (2004: 3), this "was an experiment to force tribes to join the mainstream of American Society as an

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Adoption of PL280 also required the consent of state and local authorities (see H.R. Report No. 848). For example, "in Nevada, authorities of some counties have indicated their willingness to accept jurisdiction, others opposed it and still others stated they would accept jurisdiction only with an accompanying Federal subsidy" (H.R. Report No. 848: 7). This, in essence, undermines the argument that states were chosen primarily because of lawlessness.

The historical context of the law's passage and the surrounding debate also reveals that a key underlying consideration for the selection of areas to which the new law would apply was inherently political. As suggested by Jiménez and Song (1998: 1662), "[n]o interpretation of PL280 can be persuasive unless it both acknowledges and is reconciled with the fact that it was enacted during a time in American history that is now referred to as the 'Termination Period'."

The 1940–1962 Termination Period "was marked by a distinctive philosophy and accompanied by legislation designed to promote the termination of Indian tribes" (ibid.). During this period, Congress passed legislative acts "promoting . . . the assimilation of the Indians into the mainstream of society . . . the termination of federal supervision over Indian affairs . . . and . . . the eventual relinquishment of federal control over Indian affairs to state and local authorities" (ibid.: 1662–63).

PL280 was enacted at the height of the Termination Period, "just two weeks after House Concurrent Resolution 108" (ibid., fn 204) had "crystallized the Termination Period's goals into official congressional policy and set the assimilation process in motion" (ibid.: 1663). As a consequence, "Public Law 280 contains a strong assimilationist bent and there [exists] language in the statute's legislative history that could support an assimilationist agenda" (ibid.: 1664). One senator, for example, argued that "Public Law 280 was appropriate because Indians had 'reached a state of acculturation and development' allowing for a smooth transition into society at large" (Twetten 2000: 1323). All else equal, therefore, PL280 was more likely mandated in areas where tribes were deemed "ready for complete freedom from Federal supervision and wardship" (Jiménez & Song 1998: fn 206). We draw on these historical facts when devising our empirical strategy to estimate PL280's impact.

assimilation attempt. The Menominee were singled out for termination because the tribe was self-sufficient and progressive in the eyes of the federal government." See also Table A1 and associated remarks. All of our empirical results are robust to the exclusion of the Menominee County from our sample (see our sensitivity analysis results).

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Consequences of PL280: Theory and Hypotheses

PL280 did not altogether eliminate tribal jurisdiction but rather introduced concurrent jurisdiction between tribes and states (Jiménez & Song 1998: 1635). Experts describe PL280 as "a relatively obscure and generally not well understood piece of federal legislation" (Goldberg, Champagne, & Singleton 2008: 51).

Legal scholarship argues that PL280 first obfuscated the already complex issue of jurisdiction in Indian country characterized by "a plethora of exceptions" and "idiosyncratic decisions" (Clinton 1976: 551–52, 568). PL280, according to tribal officials, introduced "[c]onfusion about which government is responsible and should be contacted when criminal activity has occurred or presents a threat" (Goldberg, Champagne, & Singleton 2008: 1). A law enforcement officer interviewed in a recent study on the consequences of PL280, for example, stated that, as a result of PL280, "there was a lot of confusion among the officers when they would arrive somewhere as to who was responsible for what and why" (ibid.: 394). Similarly, a reservation resident had argued that "[community members] are often confused about civil regulatory and criminal jurisdiction, what county and state have the authority over" (ibid.: 76). Therefore, while PL280 increased the extent of nontribal law enforcement and criminal justice (Gardner & Pecos Melton 2004), it did not do so comprehensively. The resulting confusion and "legal vacuums" (Goldberg, Champagne, & Singleton 2008: 20) likely had adverse consequences for the administration of law enforcement and criminality.

Second, because of states' "encroachment into Indian control over reservation crimes" and the associated "displacement of tribal authority" (Deloria & Lytle 1983: 176), PL280 has been perceived in tribal communities as an "infringement on tribal sovereignty" (Goldberg, Champagne, & Singleton 2008: 1). This, in turn, corroded the trust between tribal citizens and law enforcement officials and state courts (ibid.: 319). The fact that, after the 1968 amendment, no tribe ever consented to PL280 further supports the hypothesis that PL280 had a negative effect on institutional trust. Furthermore, American Indians in PL280 areas were often unwilling to have their disputes resolved in state courts out of fear of discrimination (Gardner & Pecos Melton 2004; Goldberg, Champagne, & Singleton 2008: 408).

Third, PL280 was enacted partly because of budgetary concerns (see, e.g., Jiménez & Song 1998). In line with the initiatives to reduce federal expenditures, "the Bureau of Indian Affairs . . . was seen as a good candidate for budget cuts because the ideology of the time favored assimilation and formal equality" (Goldberg &

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Champagne 2006: 702). Thus, PL280 in effect transferred jurisdiction to the states without providing the states with any additional funding (Gardner & Pecos Melton 2004; Goldberg, Champagne, & Singleton 2008). Moreover, funding for tribal courts was significantly reduced (Twetten 2000). The consequence was "absence of effective law enforcement altogether, leading to misbehavior and self-help remedies that jeopardize public safety" (Goldberg, Champagne, & Singleton 2008: 1).

Finally, PL280 indirectly imposed a different paradigm of justice, the so-called "American paradigm," to replace the "indigenous paradigm" (Pecos Melton 1995). The American paradigm has been met with significant resistance by Indians because of its inherent adversarial nature and fragmented view, both of which clash with the communal nature of tribal life (Pecos Melton 1995) as well as with strong social norms that have guided conflict resolution on tribal lands for centuries (Twetten 2000: 1333).[6] Since theory suggests that "a criminal justice system lacking legitimacy will experience problems in compliance with the law, inadequate reporting, and stymied investigations" (Goldberg 2010: 1059), PL280 likely resulted in increased criminality.

In sum, PL280, on the one hand, eroded the powers of the local community to deal with crime and social problems and, on the other hand, provided enough ambiguity for authorities not to deal effectively with enforcement on reservations (Goldberg & Champagne 2006: 708).[7] The "jurisdictional gaps and vacuums" (Goldberg, Champagne, & Singleton 2008: 11) created by PL280 likely contributed to the observed absence of law and order (Goldberg, Champagne, & Singleton 2008; Goldberg-Ambrose 1997).

In line with the above arguments, we hypothesize that PL280 had a deleterious effect on crime. The law's impact was likely strongest on American-Indian reservations. However, given the spatial spillover effects of crime, which have been documented in a

[6] The concern about incompatibility of the two doctrines was in fact put forth by John Collier, former Commissioner of Indian Affairs: "The same considerations underlying the opposition to the Navaho-Hopi jurisdictional transfer are contained in H.R. 1063. Briefly, these include: Impairing, if not completely wrecking, tribal customary law. . . . the imposition of white man law as a substitute for the voluntary but intimately controlling code of conduct, exemplified in the Indian law-and-order systems developed through the ages and in full force among many Indian tribes, who are extremely law abiding; and finally, the sudden subjection of tribal Indians to State civil laws and codes which were enacted with no reference to the Indians or their ways" (Congressional Record Appendix A5296).

[7] Twetten (2000: 1327) provides an illuminating example: In the 1970s, the Torres Martinez tribal lands were used as dumping grounds of industrial sludge from local companies, which as expected led to significant environmental pollution. The local authorities were aware of this, but did not respond, while the federal authorities, given the lack of jurisdiction, delayed intervention for so long that by the time they decided to take action, significant damage was sustained by tribal lands.

variety of socioeconomic settings (see, e.g., Brown 1982; Tabarrok, Heaton, & Helland 2010), we expect that PL280 had an effect outside of reservation areas, in counties containing reservations. Moreover, as discussed above, PL280 provided the states with an "unfunded mandate" to enforce laws in Indian country (Gardner & Pecos Melton 2004). Given the states' severely limited ability to finance expenditures associated with the new enforcement responsibilities through taxation of Indian country (Canby 1988: 247–52), PL280 effectively also restricted the resources available to the local law enforcement for the policing of areas outside of reservations. Finally, PL280 reduced tribal courts' funding (Twetten 2000). As "the jurisdiction of a tribal court may at times include off-reservation conduct by tribal members" (Clinton 1976: 559), PL280 therefore further raised the incentives to engage in criminal behavior in off-reservation areas. We empirically examine the impact of PL280 on crime in counties with significant American-Indian reservation population in the following section.

In contrast to the hypothesized effect on crime, the impact of PL280 on economic development is, at least in theory, ambiguous. On the one hand, through its anticipated adverse effect on crime, PL280 likely had a negative effect on economic performance. On the other hand, state jurisdiction over *civil* cases authorized under PL280 possibly provided for more stable contract enforcement (Johnson & Thompson 2005; Woodrow 1998) and, therefore, might have positively affected economic development through increased credit availability and private investment (Anderson & Parker 2008; Parker 2012; Cookson 2012). We empirically examine the impact of PL280 on the level of economic development of counties with significant American-Indian reservation population after assessing the law's impact on crime.

Assessing the Impact of PL280 on Crime

Data and Variables

To investigate the impact of PL280 on crime, we construct a county-level cross-sectional dataset. The data are drawn from datasets of the Inter-University Consortium for Political and Social Research (ICPSR), which are in turn based on the 1980 and 1950 census data. In conducting part of our analysis, we also match the 1980 census data with 1930 data obtained from a 1937 census report on the American-Indian population.

We restrict the sample to counties that contain an American-Indian reservation and in which American-Indian population constitutes at least 5 percent of the total county population in the year 1980. The choice of the 5 percent threshold reflects the following

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tradeoff. On the one hand, restricting our analysis to counties with a larger share of American-Indian population significantly reduces the size of our sample. On the other hand, inclusion of counties with a smaller share of American-Indian population increases the size of our sample, but dilutes the effect of PL280, which governs legal matters on American-Indian reservations. Below, we clarify that our results are robust to varying this threshold level.

To determine which counties contain reservations, we use the 1990 Census, which breaks down American-Indian population for each reservation in the United States by county, along with a U.S. Geological Survey map overlaying reservations and counties. These considerations, together with the availability of data for the variables used in our regressions, result in a sample of 78 counties, listed in Table A6 in the Online Appendix.

We use two dependent variables: the number of all crimes and the number of property crimes for the year 1981. As already noted, 1981 is the earliest year after the period of PL280 adoption for which we have sufficiently extensive data on crime and other explanatory variables.[8] The year 1981 also marks the period before the emergence of organized tribal law enforcement agencies and casinos, both of which could blur the impact of PL280.

As with any crime data, there are caveats about the accuracy of these data. On the one hand, the collection of crime data by law enforcement agencies in Indian country has not been systematic and has been relatively more incomplete in non-PL280 than in PL280 areas (Goldberg, Champagne, & Singleton 2008: 22). Yet, on the other hand, American-Indian residents in PL280 areas have, in comparison to American-Indian residents in non-PL280 areas, been known to systematically underreport crime due to lack of trust in county and state law enforcement agencies. According to a recent comprehensive analysis of crime in Indian country, "[t]ribal members report crimes about equally to tribal police and federal-BIA police, but significantly fewer are willing to report crimes to Public Law 280 state or county police" (ibid.: 318). Therefore, while our (county-level) data likely underestimate the level of crime in both PL280 and non-PL280 areas, it is not clear whether the data underestimate crime levels in the PL280 areas to a greater or to a lesser extent than in the non-PL280 areas. Thus, any estimate of

[8] The ICPSR county-level crime data that we use were originally compiled by the Federal Bureau of Investigation in the Uniform Crime Reports (UCR). We carefully examined the original UCR data for earlier time periods but chose not to utilize these data in our analysis for the following reasons. First, very scant coverage of crime data for nonurban areas prior to 1960s does not allow us to build a panel dataset covering a pre- and post-PL280 period. Second, crime reports data are missing or incomplete even for the 1960s because of spotty reporting by the originating agencies. Third, limited availability of data for our other key explanatory variables in the period prior to late 1970s further notably reduces the size of our already small cross-sectional sample.

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

the impact of PL280 on crime could either underestimate or overestimate the law's true effect on the occurrence of crime and should be treated with caution.

Our focal explanatory variables are indicator variables describing a county's PL280 status. We discuss these and our control variables as we introduce different empirical specifications below. Table A2 in the Online Appendix summarizes our variables and sources of data. Table A3 presents summary statistics.

OLS

We first examine the association between a county's PL280 status and crime by estimating the following model with OLS:

$$c_i = \alpha + \beta_1 \cdot MandPL280_i + \beta_2 \cdot OptPL280_i + X_i'\gamma + u_i. \quad (1)$$

In specification (1), c_i is either the logged number of all crimes or logged number of property crimes in county i in the year 1981. The process of adoption of PL280 in "mandatory" states differed from that in "optional" states. Optional states adopted the law at various times between 1953 and 1968 and asserted state jurisdiction to a varying extent, that is, not necessarily over all criminal and civil matters (see Table A1). We thus allow for the impact of PL280 to vary depending on whether a county lies in a "mandatory" or in an "optional" state and, if a county lies in an optional state, according to the extent to which PL280 applied in that state. $MandPL280_i$ is an indicator variable equal to 1 if county i adopted PL280 and the county lies in a "mandatory" state; and 0 otherwise. $OptPL280_i$ is an indicator variable equal to 1 if county i adopted PL280 and the county lies in one of "optional" states in which state jurisdiction granted by PL280 applied broadly to criminal and civil matters (i.e., Florida, Montana, Nevada, and Washington, but not Arizona, South Dakota, or Idaho; see Table A1); and 0 otherwise. Our findings are robust to an alternative coding of the $OptPL280_i$ variable. Table A6 in the Online Appendix provides a detailed coding of counties' PL280 status.

X_i is a vector of control variables, which includes a county's total population in 1980, local government's expenditures on police in 1977, and three additional variables: number of persons that completed at least a high school degree, number of unemployed, and median family income. It is possible that PL280, much like other legislation affecting the lives of American Indians, influenced educational and labor market outcomes, and thus family incomes (see, e.g., Gross 1979). To avoid the bias associated with inclusion of controls that could themselves be outcome variables (Angrist & Pischke 2009: 64–66), we therefore measure these three additional

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control variables in 1950, *before* the PL280 "treatment" took place. All of the control variables in vector X_i enter the regression in logged form. u_i is the error term.

In all of the regressions, we base our inference on heteroscedasticity-robust standard errors, clustered at the state level. Clustering of error terms at the state level allows for the plausible nonzero correlation between error terms for counties from the same state.

Table 1 presents the results from estimating model (1). Both the coefficient on $MandPL280_i$ and the coefficient on $OptPL280_i$ are positive and statistically significant. Under a causal interpretation, the magnitude of the effect of PL280 status on crime is noteworthy. Based on the estimates in columns (4) and (8), which feature specifications with a full set of controls, holding all else equal, mandatory PL280 status on average increased the volume of all crimes by nearly 130 percent (column (4)) and the volume of property crimes by about 140 percent (column (8)). Ceteris paribus, optional PL280 status on average, increased the volume of all crimes by more than 60 percent (column (4)) and the volume of property crimes by more than 35 percent (column (8)).

The differential impact of mandatory versus optional PL280 status on crime is statistically significant in regressions in columns (4) and (8), respectively. This resonates with the fact that, in contrast to the adoption of PL280 in mandatory states, the implementation of PL280 in optional states was an outcome of a political process at the state level, which plausibly better incorporated local knowledge and more adequately reflected local resources and needs, with a less adverse societal impact as a consequence.

To meaningfully attribute causal interpretation to OLS estimates β_1 and β_2 in specification (1), an area's PL280 status would have to be exogenous and, therefore, uncorrelated with the error term. This is a strong and, we argue, very likely inaccurate assumption. As discussed earlier, historical evidence suggests that the initial choice of areas mandated to adopt PL280 was based on careful deliberation about the perceived extent of American Indians' "readiness" for further socioeconomic integration, the willingness of state and local authorities to assume jurisdiction over Indian country, and control of lawlessness. In the following section, we therefore propose an instrumental variable approach to estimate the effect of PL280 on crime.

Instrumental Variable Approach

As argued earlier, PL280 was passed in 1953 at the height of the Termination Period in support of an assimilationist agenda (Jiménez & Song 1998). The transfer of jurisdiction from the

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Table 1. OLS Estimates for Whole Sample, Cross Section

Panel A: Dependent Variable: Log Number of All Crimes in 1981				
Explanatory Variables	(1)	(2)	(3)	(4)
Mandatory PL280	0.8787 (0.5271)	0.8370*** (0.1593)	0.5947** (0.2241)	0.8294*** (0.2876)
Optional PL280	0.4256 (0.4801)	0.8386*** (0.2715)	0.5015** (0.1972)	0.4868*** (0.1549)
Log total population in 1980		1.4568*** (0.1119)	0.8412*** (0.2478)	1.7064*** (0.3130)
Log of local government expenditures on police in 1977			0.6269** (0.2580)	0.2711 (0.2018)
1950 controls	No	No	No	Yes
Number of observations	78	78	78	78
R^2	0.0474	0.7049	0.7391	0.7815
Panel B: Dependent Variable: Log Number of Property Crimes in 1981				
Explanatory Variables	(5)	(6)	(7)	(8)
Mandatory PL280	0.9284* (0.5142)	0.8867*** (0.1655)	0.6443** (0.2308)	0.8780*** (0.3095)
Optional PL280	0.3771 (0.4747)	0.7908*** (0.2668)	0.4536** (0.1942)	0.4393** (0.1587)
Log total population in 1980		1.4593*** (0.1189)	0.8436*** (0.2447)	1.7018*** (0.3225)
Log of local government expenditures on police in 1970			0.6270** (0.2580)	0.2628 (0.1964)
1950 controls	No	No	No	Yes
Number of observations	78	78	78	78
R^2	0.0495	0.6846	0.7175	0.7588

Notes: The table reports results based on OLS regressions. Dependent variable is log of number of all crimes in 1981 for regressions in panel A, and log of number of property crimes in 1981 for regressions in panel B. The 1950 controls (all logged) are: persons completed high school in 1950, unemployed in 1950, and median family Income in 1950. Heteroscedasticity-robust standard errors clustered at state level in parentheses. *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively.

federal to state courts was mandatory for California, Minnesota, Nebraska, Oregon, and Wisconsin (see Table A1 for exceptions). These areas constitute our "treatment" group. Optional states adopted PL280 years later at the initiative of state legislatures rather than Congress—and, hence, as a result of a different political dynamics—and to a varying extent. To obtain a clear "comparison" group vis-à-vis the areas initially assigned to adopt PL280, we therefore exclude from our sample the counties lying in those "optional" states in which state jurisdiction applied broadly to criminal and civil matters (i.e., "optional" PL280 counties in Florida, Montana, Nevada, and Washington for which the $OptPL280_i$ dummy, defined above, takes on the value 1) and estimate the following model:

$$c_i = \alpha + \beta \cdot MandPL280_i + X_i'\gamma + u_i. \quad (2)$$

As in specification (1), $MandPL280_i$ in (2) is an indicator variable equal to 1 if county i adopted PL280 and the county lies in a "mandatory" state; and 0 otherwise. The vector of controls X_i is also the same as in specification (1).

Our instrumentation strategy draws directly on the historical and political context surrounding the enactment of PL280. As a source of exogenous variation in counties' mandatory PL280 status, we suggest a variable measured at the county level approximately two decades before the law's enactment: the 1930 ratio of full-blooded American Indians to all American Indians. To this end, we match the 1980 census data used in the previous section with data obtained from a 1937 census report on the American-Indian population. The 1937 report, inter alia, contains 1930 county-level data on the number of full-blooded American Indians and the total number of American Indians in a county.[9]

We expect a county's mandatory PL280 status to be negatively correlated with the 1930 ratio of full-blooded American Indians to all American Indians. Deliberating on the course of actions taken during the Termination Period, Watkins (1957), for example, argues that "[e]xperience developed in carrying out the legislation adopted by the . . . Congress for freedom from special federal control over Indians . . . has shown that other factors being equal, the . . . rather well assimilated tribes . . . appear the more likely subjects for prompt release from federal controls" (ibid.: 52). In fact, when laying out his plan for the withdrawal of Federal supervision, just a few years before the passage of PL280, the Acting

[9] Blood quantum has long been used by the federal government to establish American-Indian ancestry and define membership in American-Indian nations and tribes. In the 1930 census, however, enumerators only asked American Indians whether they considered themselves to be "full blood" or "mixed blood" (U.S. Census 1937: 70).

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Commissioner of Indian Affairs William Zimmerman argued that the key criterion to determine whether a tribe was ready for "freedom from Federal supervision" would be "the degree of individual acculturation" (Herzberg 1977: 303). Moreover, Zimmerman's first criterion (the degree of tribal acculturation) was based upon his assessment of "such factors as *the admixture of white blood* [emphasis added], the percentage of illiteracy, the business ability of the tribe, their acceptance of white institutions, and their acceptance by the whites in their community" (ibid.: 307).

All else equal, at the dawn of its enactment in 1953, PL280 was therefore more likely mandated in areas where tribes were deemed "ready for complete freedom from Federal supervision and wardship" as "Indians had reached a state of acculturation and development that made them amenable to these changes" (Jiménez & Song 1998: fn 206).

At the same time, the 1930 ratio of full-blooded American Indians to all American Indians should not affect the level of crime in 1980 through any channel other than PL280. This conjecture is particularly plausible since we control for the 1950 level of human capital (number of persons who completed at least a high school degree), number of unemployed, and median family income—variables that could have perhaps been affected by the extent of American Indians' integration into the mainstream society and, at the same time, put a given geographic area on a specific crime path. We argue, therefore, that our instrumental variable for mandatory PL280 status plausibly satisfies the exclusion restriction.

In addition to instrumenting for the mandatory PL280 status, we address the likely endogeneity of another variable, which enters our model (2) as a control: local government expenditures on police. The level of police expenditures in an area reflects actual and anticipated extent of crime, and is therefore not exogenous to the volume of crime. We suggest that the level of local government expenditures on highways represents a source of exogenous variation in local government expenditures on police. Expenditures on highways should not directly affect crime, thus satisfying the exclusion restriction. At the same time, a local government's expenditures on highways are highly correlated with its expenditures on police, rendering our instrument relevant.

As a benchmark, the left column in each of the panels of Table 2 presents OLS estimates of model (2) using the same sample of observations as used in the IV (2SLS) estimation discussed below. The implied magnitude of the effect of mandatory PL280 status on crime is very similar to that reported in the previous section (see columns (4) and (8) of Table 1).

The right column in the two panels of Table 2 presents the IV (2SLS) estimates when we instrument for both a county's manda-

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Table 2. OLS and IV (2SLS) Estimates for Sample Excluding Counties for which Optional PL280 = 1, Cross Section

Panel A: Dependent Variable: Log Number of All Crimes in 1981		
Explanatory Variables	OLS	IV (2SLS)
Mandatory PL280	0.8658** (0.3097)	2.2996** (1.0816)
Log total population in 1980	1.7999*** (0.2944)	3.1586*** (1.0528)
Log of local government expenditures on police in 1977	0.2373 (0.1985)	−0.7577 (0.8207)
1950 controls	Yes	Yes
Number of observations	63	63
R^2	0.8054	0.7025
Panel B: Dependent Variable: Log Number of Property Crimes in 1981		
Explanatory Variables	OLS	IV (2SLS)
Mandatory PL280	0.9229** (0.3335)	2.5312** (1.1687)
Log total population in 1980	1.7961*** (0.2978)	3.3699*** (1.0923)
Log of local government expenditures on police in 1977	0.2236 (0.1871)	−0.9386 (0.8597)
1950 controls	Yes	Yes
Number of observations	63	63
R^2	0.7801	0.6528

Notes: The table reports results based on OLS and IV (2SLS) regressions for the sample excluding counties for which optional PL280 = 1 (see Table A6 in the Online Appendix). Dependent variable is log of number of all crimes in 1981 for regressions in panel A, and log of number of property crimes in 1981 for regressions in panel B. The 1950 controls (all logged) are: persons completed high school in 1950, unemployed in 1950, and median family income in 1950. The endogenous regressors are mandatory PL280 and log of local government expenditure on police in 1977. Heteroscedasticity-robust standard errors clustered at state level in parentheses. *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively.

tory PL280 status and local government expenditures on police. The estimate of β is statistically significant when using either log of all crimes or log of property crimes as the outcome variable, and is more than double the size of the OLS estimates reported in the left column. Under a causal interpretation, the effect of mandatory PL280 status on the volume of all crimes and property crimes is therefore large in magnitude. Turning to other coefficients reported in the IV (2SLS) column of Table 2, the number of all crimes and the number of property crimes, as expected, both increase with total population in 1980 and both decrease with local government expenditures on police in 1977.

The first-stage regressions (see Table 3) indicate that, as conjectured, the likelihood that the geographic area was mandated to adopt PL280 is negatively and statistically significantly associated with the 1930 ratio of full-blooded American Indians to all American Indians. Similarly, local government expenditures on police in 1977 are positively and statistically significantly associated with the local government expenditures on highways in the same year. The Kleibergen-Paap rk Wald F-statistic of 4.75 suggests that our instruments are, as a group, reasonably strong in a statistical sense: For

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Table 3. First-Stage Regressions for IV (2SLS) Regressions in Table 2

Explanatory Variables	Dependent Variable: Mandatory PL280	Dependent Variable: Log of Local Government Expenditure on Police
Full-blood American Indians ratio in 1930	−0.4498** (0.1773)	0.2049 (0.2015)
Log of local government expenditures on highways in 1977	0.2233*** (0.0659)	0.1754** (0.0749)
Log of total population in 1980	−0.0151 (0.1258)	0.9838*** (0.1430)
1950 controls	Yes	Yes
Number of observations	63	63
F-statistic, test of overall significance	4.16	58.99
Angrist–Pischke F-statistic, test of excluded instruments	4.47	12.58
Kleibergen-Paap rk Wald F-statistic	4.75	

Notes: The table reports first-stage regressions for the IV (2SLS) regressions in Table 2. The Kleibergen-Paap rk Wald F-statistic is a robust analog of the Stock and Yogo (2005) Wald F-statistic in the presence of heteroscedasticity, autocorrelation, or clustering (see Baum, Schaffer, and Stillman 2007). According to Stock and Yogo (2005), the instruments are considered weak if the conventional 5% Wald test based on 2SLS statistics has an actual size that could exceed a certain threshold (maximum test size). Under weak instruments, the conventional Wald test thus rejects the null hypothesis that the coefficients of endogenous regressors are equal to zero too frequently (see Baum, Schaffer, and Stillman 2007). For two endogenous regressors and two excluded instruments, the Stock–Yogo critical values obtained under the assumption of i.i.d. errors are 7.03 (for 10% maximum test size), 4.58 (for 15% maximum test size), 3.95 (for 20% maximum test size), and 3.63 (for 25% maximum test size). The 1950 controls are as listed in notes under Tables 1 and 2. Heteroscedasticity-robust standard errors clustered at state level in parentheses. *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively.

two endogenous regressors and two excluded instruments, the Stock–Yogo critical value obtained based on the assumption of i.i.d. errors is 4.58 for 15 percent maximum test size.

The increase in the magnitude of the estimate of β when moving from OLS to IV (2SLS) estimation (see Table 2) suggests a downward bias in the OLS estimates of the impact of mandatory PL280 status on crime. The downward bias in OLS results is consistent with the endogenous nature of PL280 as documented by the debates surrounding the law's enactment. In particular, Congressional records indicate that the five mandatory states were, inter alia, selected because the respective state and local officials had agreed to the implementation of PL280; conversely, states where politicians and local representatives objected to assuming jurisdiction over Indian country without a federal support (e.g., Nevada, South Dakota, Montana) were excluded from the list of mandatory states (see H.R. Report No. 848). Since a state's readiness to adopt PL280 is indicative of the authorities' ability and willingness to provide effective law enforcement, which in turn reduces the incidence of crime, a failure to address the issue of selection of mandatory PL280 areas underestimates the law's impact on crime.

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Sensitivity Analysis Results

To investigate the sensitivity of our results, we conducted several robustness checks. We summarize our findings.[10]

First, we explored the consequences of an alternative coding for the $OptPL280_i$ dummy variable such that this variable takes on the value 1 if county i adopted PL280 and the county lies in any of the "optional" states, *regardless* of the extent of state jurisdiction granted by PL280; and 0 otherwise. Unsurprisingly, the coefficient on the $OptPL280_i$ dummy in our OLS regressions on the whole sample becomes statistically insignificant. In contrast, the adverse effect of mandatory PL280 status on crime is fully robust to this recoding: The coefficient on $MandPL280_i$ remains statistically significant and positive in all regressions presented in earlier sections.

Second, we reran all regressions by gradually increasing the threshold on the share of American-Indian reservation population from 5 to 15 percent. While sample size decreases notably as a consequence, the effect of PL280 on crime is still positive, statistically significant, and large in magnitude.

Third, we examined the robustness of our results to the inclusion of Oklahoma counties in our sample and the exclusion of the Menominee County, Wisconsin, from our sample. Oklahoma, where reservations have an ambiguous legal status, never adopted PL280 (Tinker 2011). The Menominee county of Wisconsin contains the Menominee Reservation, which found itself both terminated and reinstated during the period of our study (see Table A1). Our results are fully robust to these changes in the sample.

Fourth, we checked the sensitivity of our results to the inclusion of total urban population in 1980 as an additional control variable, which could plausibly determine the prevalence of crime. Our results about PL280's impact on crime remain unchanged. The coefficient on 1980 total urban population is statistically insignificant in all regressions.

Finally, we analyzed the sensitivity of our IV (2SLS) results by replacing, as well as combining, the 1930 ratio of full-blooded American Indians to all American Indians, our chosen instrument for mandatory PL280 status, with two other plausible instrumental variables available in the 1937 census report: the 1930 ratio of American Indians who do not speak English to all American Indians, and the 1930 ratio of illiterate American Indians to all American Indians. Our findings on PL280's impact on crime remain unchanged as a result.

[10] Detailed sensitivity analysis results are available upon request from the authors.

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Assessing the Impact of PL280 on Economic Development

As suggested above, the effect on PL280 on economic development is, at least in theory, unclear. On the one hand, given our findings above, we anticipate that PL280 had an adverse effect on economic development: Prevalence of crime discourages investments and diverts resources away from productive activity. Yet, PL280-induced state jurisdiction over *civil* disputes could have also exhibited a positive impact on economic development by providing for greater stability in contract enforcement (Anderson & Parker 2008; Cookson 2012).

Data

To examine PL280's impact on economic development, we construct a panel dataset of counties using each decennial census from 1950 to 1980, the time period before and after PL280's enactment, and prior to the emergence of casinos (which could obscure the effect of PL280). Much like in the case of constructing the cross section, we employ the electronic versions of county-level data publicly available through ICPSR.

Our outcome of interest in this section is the level of economic development, which PL280 likely impacted less directly than the occurrence of crime studied earlier. The panel structure of the data increases the size of our sample. Our sample-censoring threshold on the percentage of American-Indian population is therefore naturally set higher in this section than in our earlier cross-sectional analysis of crime. Specifically, we restrict our sample to counties that had reported at least 15 percent American-Indian population in the year 1980 and which contain an American-Indian reservation. (Below, we clarify that our results are quite robust to varying this threshold level.) These considerations, together with the availability of data for variables used in our analysis, give rise to a balanced panel of 35 counties for each of the four census years (see Table A7 in the Online Appendix).

Our dependent variable, measuring the level of economic development, is median family income. Median family income is the only consistently reported income-related variable in the Census across the four decades (i.e., in years 1950, 1960, 1970, and 1980) covered by our panel.

As already noted, the degree to which state jurisdiction was extended under PL280 varied across the "optional" states. Accordingly, our focal explanatory variable, PL280, is an indicator variable that takes on the value of 1 if, in a given year, PL280-granted state jurisdiction in a county applied broadly to criminal and civil matters, and 0 otherwise. (Below, we explain that our results are

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fully robust to an alternative coding of the PL280 dummy.) This variable, therefore, conveys information both about the year of adoption of PL280 and, if applicable, the year of retrocession. Specifically, the value of 0 for a given county in a specific year could indicate either that the state in which the county lies has not (yet) adopted PL280 or, alternatively, that the county retroceded after the 1968 amendments to the law (see Table A7).

We also control for the level of human capital (measured by percent of people with at least a high school degree), which plausibly affects the level of economic development. Table A4 in the Online Appendix describes our variables. Table A5 presents summary statistics.

Pooled OLS

We first explore the association between a county's PL280 status and median family income using the following specification:

$$y_{it} = \alpha + \beta \cdot PL280_{it} + \gamma \cdot X_{it} + \lambda_t + u_{it}, \quad (3)$$

where y_{it} is the log of median family income in county i in time period t, $PL280_{it}$ is a dummy equal to 1 if PL280 applies broadly to county i in time period t, and 0 otherwise, X_{it} is a vector of controls, and λ_t is the year fixed effect, implemented in the estimation with the inclusion of year dummies. Year dummies, inter alia, absorb the changes in the aggregate price level during the period of our study. This allows us to interpret the effect of right-hand-side variables in (3) on median family income as a real, rather than nominal, effect (see Wooldridge 2009: 448). α is the regression constant and u_{it} is the error term. The coefficient of interest is β.

We estimate equation (3) using pooled OLS. For all of the regression models we estimate, we base our inference on cluster robust standard errors (see, e.g., Cameron & Trivedi 2005; Wooldridge 2003). To allow for the conceivable nonzero correlation between error terms for counties from the same state, we cluster errors at the state level.

Columns (1) and (2) in Table 4 report the results. When we control for year fixed effects only (column (1)), the estimate of β indicates a positive, albeit statistically insignificant, association between a county's PL280 status and income. Additionally controlling for the level of human capital (column (2)) renders the coefficient on $PL280_{it}$ negative; the estimate of β, however, is still statistically insignificant.

Fixed Effects Specifications

To be able to give a causal interpretation to coefficient β in model (3), the error term u_{it} must be uncorrelated with $PL280_{it}$ and

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Table 4. Pooled OLS and FE Estimates, Panel

Explanatory Variables	Pooled OLS		FE	
	(1)	(2)	(3)	(4)
PL280	0.0395 (0.0970)	−0.0206 (0.0792)	−0.1691* (0.0855)	−0.1682* (0.0889)
Percent completed high school		0.0213*** (0.0029)	0.0209** (0.0092)	0.0209** (0.0092)
Year dummies	Yes	Yes	Yes	Yes
County fixed effects	No	No	Yes	Yes
County-specific linear time trend	No	No	No	Yes
Number of observations	135	135	135	135
R^2	0.8875	0.9438	0.9705	0.9705

Notes: The table reports regression results based on pooled OLS (columns (1) and (2)) and fixed effect (columns (3) and (4)) estimation. The dependent variable is log of median family income. Heteroscedasticity-robust standard errors clustered at state level in parentheses. *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively.

X_{it}. This is a strong assumption that is unlikely to hold given the law's context. As a result, an estimate of β based on pooled OLS estimation is likely to be biased. To better address the endogenous nature of a county's PL280 status, we posit instead the following empirical model:

$$y_{it} = \beta \cdot PL280_{it} + \gamma \cdot X_{it} + \lambda_t + \mu_i + \varepsilon_{it}, \quad (4)$$

where y_{it}, $PL280_{it}$, X_{it}, and λ_t are as defined in specification (3).

In specification (4), we split the error term into two components: μ_i and ε_{it}. μ_i is the time-invariant component of the error term. μ_i captures county-level, time-invariant ("fixed") factors that we do not directly control for, such as, for example, the availability of natural resources and other geography-based determinants of economic development (Anderson & Parker 2008), historical determinants of reservations formation (Anderson & Lueck 1992; Dippel 2011), tribal culture and governance mechanisms (Akee, Jorgensen, & Sunde 2012; Cornell & Kalt 2000; Pickering 2004), as well as the constituency's—local authorities' and tribes'—willingness to adopt PL280. Under this fixed effects specification, consistent estimates of parameters are obtained even when the time-invariant, county-level unobserved heterogeneity μ_i is correlated with the right-hand-side variables in equation (4). ε_{it} is the time-varying component of the error, assumed to be uncorrelated with right-hand-side variables in equation (4). (We relax this assumption below.)

We estimate model (4) using the least-squares-dummy-variable estimator with a full set of county dummies, an approach equivalent to using the fixed effects "within" estimator (see, e.g., Wooldridge 2002). Column (3) of Table 4 reports the results. In contrast to the results based on the naïve pooled OLS (columns (1) and (2)), the

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coefficient on $PL280_{it}$ is now both negative *and* statistically significant. Under a causal interpretation, the estimate of β in column (3) suggests that, ceteris paribus, PL280 status on average decreased median family income in a county by nearly 16 percent.

Finally, to address the possibility that *changes* in unobserved county-level characteristics are correlated with both PL280 status and median family income, we estimate a model with county-specific time effects. The inclusion of a full set of county-year dummies is not possible since doing so would eliminate degrees of freedom. Instead, we posit the following specification with county-specific linear time trend $\mu_i t$:

$$y_{it} = \beta \cdot PL280_{it} + \gamma \cdot X_{it} + \lambda_t + \mu_i + \mu_i t + \varepsilon_{it}. \quad (5)$$

Column (4) of Table 4 reports the results from estimation of model (5). The estimate of β remains statistically significant, negative, and in terms of magnitude, virtually identical to the estimate obtained based on specification (4) (see column (3)).

General-Method-of-Moments Instrumental Variables (GMM-IV) Approach

In an attempt to estimate the effect of PL280 on income, the fixed effects specifications (4) and (5) control for time-invariant county-level heterogeneity as well as the level of human capital proxied by the percent of population that completed high school. Specifications (4) and (5), however, do not allow for the possibility of correlation between the right-hand-side variables, in particular $PL280_{it}$, and the time-varying component of the error term ε_{it}. Yet, PL280 status could plausibly be endogenous to some aspect of time-varying unobserved heterogeneity which, given available data, we cannot directly control for. This could raise concerns about possible bias of our estimates reported in columns (3) and (4) of Table 4.

Similarly, specifications (4) and (5) do not allow for persistence in the evolution of median family income over time. To the extent that the choice of the PL280 status could have been systematically related to past levels of economic development, controlling for median family income in the previous period further alleviates any bias due to endogenous selection of areas subject to PL280.

We therefore specify the following dynamic model:

$$y_{it} = \rho \cdot y_{i,t-1} + \beta \cdot PL280_{it} + \gamma \cdot X_{it} + \lambda_t + \mu_i + \varepsilon_{it}, \quad (6)$$

where $y_{i,t-1}$ is the lagged value of logged median family income. All other components of specification (6) match those featured in specification (4).

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The presence of lagged dependent variable among the set of explanatory variables in (6), and the possibility that $PL280_{it}$ is correlated not only with μ_i but also with ε_{it}, violates the assumption of strict exogeneity of regressors. Lack of strict exogeneity of regressors renders the fixed effects estimator biased and inconsistent (see, e.g., Nickell 1981). To obtain consistent estimates of the coefficients, in particular β, we estimate model (6) using the GMM-IV approach proposed by Arellano and Bond (1991).

To apply the GMM-IV approach, we first eliminate the county fixed effects (μ_is) by first-differencing expression (6):

$$\Delta y_{it} = \rho \cdot \Delta y_{i,t-1} + \beta \cdot \Delta PL280_{it} + \gamma \cdot \Delta X_{it} + \Delta\lambda_t + \Delta\varepsilon_{it}. \qquad (7)$$

While expression (7) is free of county fixed effects, $\Delta y_{i,t-1}$ is, by construction, correlated with $\Delta\varepsilon_{it}$ (because $y_{i,t-1}$ is correlated with $\varepsilon_{i,t-1}$). $\Delta PL280_{it}$ and ΔX_{it} are also correlated with $\Delta\varepsilon_{it}$ if a county's PL280 status and level of human capital, respectively, are contemporaneously correlated with the error term ε_{it} in equation (6) because of some unobserved time-varying, county-level heterogeneity or even simultaneity. As long as the PL280 status and the level of human capital are uncorrelated with the future realizations of the error term (i.e., they are "weakly exogenous"), the second and deeper lags of $\Gamma_{it} \equiv (y_{it}, PL280_{it}, X_{it})$ are uncorrelated with $\Delta\varepsilon_{it}$, and thus all available as instruments.[11]

Under the assumptions of no serial correlation in the error term ε_{it}, the Arellano and Bond (1991) "difference" GMM-IV estimator thus relies on the following moment conditions: $E[\Gamma_{i,t-s}(\varepsilon_{it} - \varepsilon_{i,t-1})] = 0$ for $s \geq 2$. Because our panel consists of four cross sections only, the implied number of available internal instruments is necessarily small. Our analysis, therefore, does not suffer from the bias-inducing "instrument proliferation problem" (Roodman 2009).

Table 5 reports our results based on the GMM-IV approach.[12] The coefficient on the PL280 indicator variable is negative and statistically significant in both specifications in Table 5. We do not find evidence on persistence of income: the coefficient on the

[11] Paraphrasing Levine, Loayza, and Beck (2000: 51), the "weak exogeneity" assumption does *not* imply that a county's PL280 status is determined without taking into account expected future income. Weak exogeneity only presupposes that *future unanticipated* shocks to income do not influence the decision on a county's current PL280 status.

[12] We also estimated model (6) using the "system" GMM-IV estimator of Arellano and Bover (1995) and Blundell and Bond (1998), which uses an additional set of moment conditions. The diagnostic tests for the results obtained using the "system" GMM estimator, however, were weaker, which is not surprising given our relatively small sample. We thus present our conclusions based on the results obtained using the "difference" GMM-IV estimator only.

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

Table 5. GMM-IV Estimates, Panel

Explanatory Variables	(1)	(2)
Lagged log of median family income	−0.0470 (0.2916)	
PL280	−0.4445* (0.2421)	−0.4110*** (0.1271)
Percent completed high school	0.0396** (0.0185)	0.0282*** (0.0100)
Year dummies	Yes	Yes
Number of observations	65	100
Number of instruments[a]	9	7
Hansen overidentification test (p-value)[b]	0.184	0.124
Arellano–Bond serial correlation test (p-value)[c]	n.a.	0.982

Notes: The dependent variable is log of median family income. Columns (1) and (2) report results using the Arellano and Bond (1991) difference GMM estimation. The instrument set for the regression in column (1) is based on the second and deeper lags of logged median family income, PL280, and percent completed high school, and differenced year dummies. The instrument set for the regression in column (2) is based on the second and deeper lags of PL280 and percent completed high school, and differenced year dummies. The heteroscedasticity-robust standard errors reported in parenthesis are clustered at the state level and calculated using the Windmeijer (2005) correction. *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively.

[a]Some of the potential instruments were dropped because of collinearity.

[b]The null hypothesis is that the instruments are not correlated with residuals.

[c]The null hypothesis is that the errors in the first-difference regression exhibit no second-order autocorrelation.

lagged dependent variable is statistically highly insignificant (see column (1)). The Hansen test of overidentifying restrictions is indicative of the appropriateness of our instruments in both specifications in Table 5. When computed, the (Arellano–Bond) test of serial correlation further supports our instrumental variables approach (see column (2)).

In sum, even when allowing for correlation between a county's PL280 status and the time-varying component of the error term (see above), we find that PL280 status decreases median family income. Based on the estimates reported in Table 5, under a causal interpretation, PL280 status ceteris paribus decreased median family income on average between 34 percent (column (2)) and 36 percent (column (1)).

Our findings, thus, do not resonate with the conjecture that PL280 spurred economic development (Anderson and Parker 2008). This, of course, does not preclude the possibility that the increased involvement of state courts in *civil* matters under PL280 had some beneficial effects (see, e.g., Cookson 2012; Parker 2012). Based on our analysis, which, in contrast to Anderson and Parker's (2008) work, carefully addresses the endogenous nature of PL280, the adverse effects of PL280 through other channels, in particular an increase in crime and lawlessness, seem to have outweighed any positive effects of the law on economic development associated with the transfer of civil jurisdiction to state courts, at least in the period up to 1980 (prior to emergence of casinos).

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Sensitivity Analysis Results

We again performed several robustness checks of our results. First, because the degree to which state jurisdiction over criminal and civil cases in "optional" state was extended under PL280 was uneven, we coded an alternative PL280 indicator variable which takes on the value of 1 whenever state jurisdiction granted under PL280 applied to at least *some* kind of criminal and civil cases (see Table A1).[13] Our results based on this alternating coding of the PL280 indicator variable are quantitatively very similar and qualitatively identical to the ones reported in the sections above.

Second, to allow for the possibility that the impact of PL280 was different in mandatory versus optional states, we examined additional specifications where we split our PL280 dummy variable into two dummy variables: mandatory PL280 and optional PL280. Mandatory PL280 equals 1 if a county in a given time period was under PL280 status in a mandatory PL280 state (see Table A1), and 0 otherwise. Optional PL280 equals 1 if in a given time period a county was under PL280 status in an optional PL280 state that applied PL280 broadly, and 0 otherwise. The pattern of statistical significance of the coefficients on mandatory PL280 and optional PL280 dummies varied across specifications and estimation methods. Moreover, the coefficients on mandatory PL280 and optional PL280 were never statistically significantly different from each other. Thus, while the association between PL280 and median family income is robustly negative and statistically significant in all preferred specifications, we do not find robust evidence that in the period up to 1980 the adverse impact of PL280 on the level of economic development was different in mandatory versus optional PL280 areas.

Third, we reran all regressions for different levels of the threshold on the share of American-Indian reservation population. Under the 20 percent threshold, the effect of PL280 remains highly statistically significant and of an order of magnitude similar to that noted in the previous sections. Under the 10 percent threshold, the effect of PL280 is, as expected, somewhat diluted, but remains negative and statistically significant.

Finally, much like in the sensitivity analysis described in our examination of PL280's impact on crime, we examined the robustness of our results to the inclusion of Oklahoma counties in our sample and the exclusion of the Menominee County, Wisconsin, from our sample. Our results on the impact of PL280 on the level

[13] Under this alternative coding, the PL280 dummy takes on the value 1 for the counties in Arizona, South Dakota, and Idaho during periods when limited state jurisdiction in these areas actually applied (see Table A1).

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

of economic development are virtually unaffected by these changes in the sample.

Conclusion

PL280-induced change of jurisdictional authority created jurisdictional uncertainty and confusion, provided states with an unfunded mandate to extend their law enforcement capacity into American-Indian reservations, and reduced tribal autonomy in addressing social issues. As such, PL280 resulted in a drastic change in the existing legal order in affected parts of the Indian country.

This article provides new empirically grounded insight into PL280's consequences by estimating the law's impact on crime and on the level of economic development in U.S. counties with significant American-Indian reservation population, focusing on the pre-casino era. Unlike existing contributions that view the variation in jurisdictions' PL280 status as exogenous to economic outcomes (Anderson & Parker 2008: 652; Parker 2012: 1)—a strong assumption that has been questioned by a leading scholar on legal development in Indian country (Goldberg 2010: 1048–51)—we explicitly address the issue of endogenous selection of PL280 areas.

We find that the adoption of PL280 led to an increase in the incidence of crime and reduced the level of economic development as measured by median family income. Because of the imperfect nature of our crime data, our estimate of PL280's impact on crime could be biased; we might be either overestimating or underestimating the law's true effect. However, our findings concerning the *direction* of the law's impact, both on crime and on economic development, are consistent with the descriptive accounts and theoretical conjectures found in the legal scholarship.

By uncovering PL280's adverse socioeconomic effects, our analysis has highlighted the "unreceptive" nature of the PL280-induced jurisdictional change, which involved an imposition of a "foreign" system of criminal justice in Indian country. As such, our findings resonate with recent empirical literature pointing to negative consequences of institutional transplantation (see, e.g., Berkowitz, Pistor, & Richard 2003a; 2003b; Lambert-Mogiliansky, Sonin, & Zhuravskaya 2007; Pistor, Raiser, & Gelfer 2003) and, at the same time, cast doubt on the feasibility of successful radical, externally imposed institutional change (Acemoglu et al. 2011) and transplantation in general (Watson 1993). Our analysis first supports the view that institutional transplantation should be sensitive to local political and societal conditions (see, e.g., Boettke, Coyne, & Leeson 2008; Grajzl & Dimitrova-Grajzl 2009; Rodrik 2000).

https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

Second, our results reinforce the claim that the legitimacy of a transplant is a key determinant of its success (Miller 2003). As Goldberg (2010: 1043) points out, "reservation residents have substantial concerns about the fairness and effectiveness of state criminal justice in Indian country. Because mistrust of legal institutions breeds lawlessness, the reported concerns of reservation residents are reason alone to re-evaluate state authority in Indian country." One way to achieve legitimacy, and ensure a transparent and deliberative process of institutional change, is to involve the local population (Roland 2004). Third, our results indicate that transplantation should seek to minimize the inevitable loss of coherence within the newly emergent institutional order (Garoupa & Ogus 2006: 345).

In a broader context, our article contributes to the growing literature emphasizing the crucial importance of legal institutions for economic performance and development (see, e.g., Haselmann, Pistor, & Vig 2010; La Porta, Lopez-de-Silanes, & Shleifer 2008; Posner 1998).

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https://doi.org/10.1111/lasr.12054 Published online by Cambridge University Press

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