Tribal Casinos, Economic Wellbeing, and Intergenerational Mobility

NBER Economics of Mobility Meeting

Randall Akee (UCLA), Maggie R. Jones (U.S. Census Bureau),

and Emilia Simeonova (Johns Hopkins)

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Motivation

- Family socio-economic circumstance is an important determinant of children's long-term outcomes: health, education, labor supply (Almond, Currie, and Duque 2018; Currie 2013; Duncan, Magnusson, and Vortuba-Drzal 2017)

- Currently a gap between American Indian and white incomes of 18% (Chetty et al. 2019)

- Reducing racial disparities requires reducing *intergenerational* gaps

- However, there may be differences in how income (ranks), earnings, and labor market success as conventionally defined affect utility in different groups

- For example, the ability to pursue traditional lifestyles and engage in communal activities might be as important as earning a higher wage. Such differences in preferences are not reflected in our measures of economic success.

Motivation

- The intergenerational transmission of socio-economic status can be affected by policy (Chetty, Hendren, and Katz 2016; Aizer, Eli, Ferrie, Lleras-Muney 2016; Akee et al. 2020; Aizer, Hoynes, Lleras-Muney 2022)

- Several different approaches to improving children's outcomes (relative to their parents') have been proposed and studied:
    - School and family-based interventions, such as Head Start
    - Place-based economic development programs
    - Conditional and unconditional cash transfers going directly to the family

- Which policies work and which work best are empirical question

What We Do

- We examine intertwined interventions related to tribal casino operations to estimate separate impacts of
  - Local economic stimulation via casino opening
  - Unconditional per capita cash payments

- We study the effects of these interventions on one of the most-disadvantaged and least-studied populations in the U.S.

Institutional Background

- The Indian Gaming Regulatory Act (IGRA) was passed by Congress in 1988 with the explicit goal of promoting "tribal economic development, self-sufficiency, and strong tribal governments"

- IGRA's provisions stipulated that proceeds from gaming operations should go back to tribal governments

- These proceeds could be used to:
    1) Fund tribal government operations
    2) Provide for the general welfare of the tribal population (includes per capita payments)
    3) Promote tribal economic development
    4) Donate to charitable organizations
    5) Help fund operations of local government agencies

Institutional Background

- Over the next two decades, most tribes in the lower 48 states opened some sort of gaming operation—from slot machines and bingo halls, to large Las Vegas-style operations with attached hotels and restaurants

- A tribe's decision to open a casino on tribal lands in part determined by geography (but not only): those located farther away from large urban centers are less likely to open casinos

- Others have decided not to pursue casino revenues for various reasons

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- When the tribe starts gaming operations depends on the timing of negotiations with state and local governments. Some states and administrations have been more responsive than others. Thus, conditional on deciding to start such operations, the exact timing of approval is unknown at the point of application
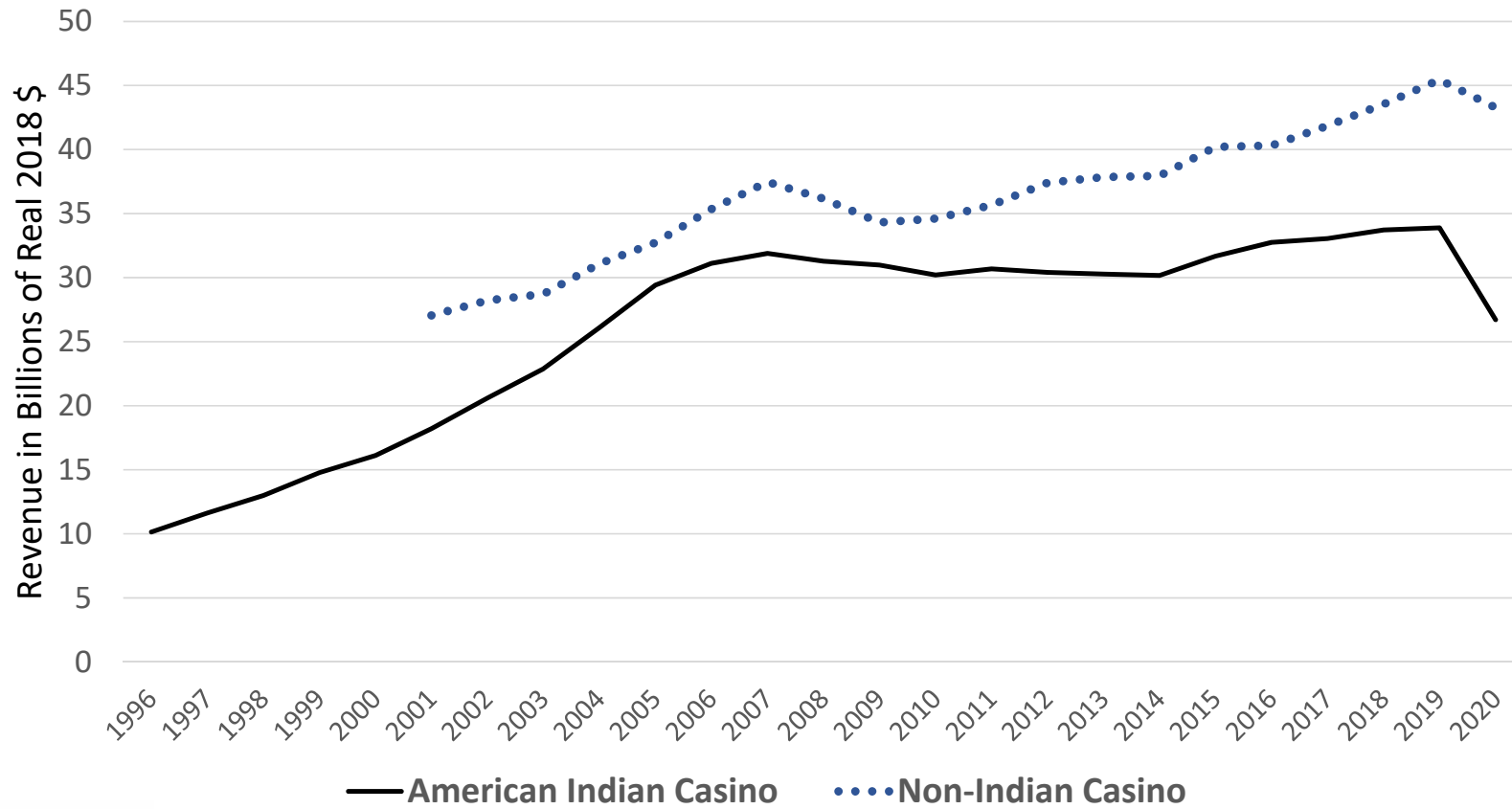
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- Some tribes have distributed dividends from casino operations to tribal members, including tribal members who live off reservation lands

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Aggregate Casino Revenues

Source: National Indian Gaming Commission

Implications for Tribes

- Gaming operations revenues and associated programs dwarf any other public intervention on tribal lands

- 27.8 billion in tribal gaming revenues in FY 2020 (pandemic related 20% decrease); the average gross margin of profitability for casinos and gaming is about 60%

- 2021 BIA budget was 1.9 billion; IHS budget for 2021 was 6.3 billion

- Comparison to other programs, non AI-specific: EITC is 63bn in 2019

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- Per capita payments are kept secret--range in size from a few hundred $ to tens of thousands

- Paid annually or semi-annually.

- Subject to federal income taxes but not state income taxes

Implications for Individuals

- Cash transfers affect tribal members only; gaming operations affect everyone living in the vicinity of tribal lands, though effects on AI likely differ

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- Gaming only: More and better-paid jobs, which either displace existing lower paid jobs or employ previously unemployed (or both); parents will get better pay, but might spend more time outside the home (particularly mothers). Associated tribal programs might affect general wellbeing

- Cash transfers: Pure income effects, transfers happen regardless of household income; we expect reductions in labor supply, especially for lower-paid household members

- When both are present, the net effect uncertain

- Household bargaining is also likely affected by 1) improved labor market opportunities and 2) unearned income transfers

Previous Literature on Tribal Casino Operations

Studies of casino impacts that include all casinos but do not have panel or individual data:

- Evans and Topoleski (2002) ;
- Wolfe, Jakubowski, Haveman, and Courey (2012)

Criticism: cannot properly account for selective migration on or off the reservation; or for selective tribal enrollment/AI identification

Studies that use individual panel data from one tribe (GSMS):

- Series of papers on child psychology by a team led by Angold, Costello, and (more recently) Copeland

- Akee, Copeland, Simeonova et al. (2010, 2013, 2018, 2020, in progress)

Generalizability to other tribes and program designs

Research Questions

- Do casinos affect the local labor market and socio-demographic characteristics of households residing nearby? Are Indians and non-Indians affected differently?

- Are there effects on tribal members residing off reservation lands?

- What are the effects on the second generation?

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Summary of findings

For those who were aged 18-45 in 1989 and lived on or adjacent to tribal lands:

1. Opening a casino on tribal lands substantially increases adult American Indian AGI; the effects are driven primarily by the cash transfers

2. Formal employment, as measured by filing a W2 or 1099, is reduced

3. Results differ by the presence of children in the household

4. Much smaller effects on non-AIs

Similarly sized effects on income for those AIs living off tribal lands in 1989

For children of individuals aged 18-45 in 1989 who lived on reservations:

1. Casinos reduce AGI and employment for AIs; the effects on AGI are reversed by the cash transfers

2. Small effects on the probability of marriage by age 25

3. No effects on non-AIAN children

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Data: First generation

- 1040 filers ages 18-49 who filed from a reservation tract or zip code in 1989 (in 1989, about half of reservation residents are AI; we attain a lower percent due to imprecise geo match)

- Individuals linked to longitudinal information from the opportunity databank, where databank contains
  - 1040 filing information, 1989-2017; Numident characteristics (DOB, DOD, etc.); race and ethnicity info from decennials and ACS; W-2 and 1099 info from 2005-2017
  - We identify as AI anyone who reported AI in up to 4 race variables
  - For those with missing race date or who were deceased before 2000 we import race from SSA records
  - We retain these adults in the analysis regardless of later moves

- In a separate analysis, we also retain AIs who lived off reservation tract/zip in 1989

- We link info at the tract/zip code level on casino openings and the *application* for a per capita payment plan—we estimate a general ITT

Data: second generation

- Using the databank, we identify any children of the adults captured previously (both the on-reservation adults and AI adults off reservation)

- Data again include 1040 filing information; Numident characteristics (DOB, DOD, etc.); race and ethnicity info from decennials and ACS; W-2 and 1099 info from 2005-2017
  - A child is coded as being American Indian if either parent reported AI race or the parents' information is missing and the child reported being AI

- We merge in public-use information on casinos and per capita plans, requiring that children must be "treated" before age 18
  - A current limitation of the analysis is the issue of dropping observations in tribes where a casino opens post-2009

- Future work includes linking ACS information for the children: education, self-employment behavior, etc.

Timeline

Last year for which we have cash transfer information; obs in tribal tracts where a casino opened after this date are dropped from the analysis

1989 data window opens, all adults residing on reservation (with or without children) , tax data

1971 earliest birth cohort for children

1994 tax data

2009

1995 tax data

1988 IGRA is signed

1998 onward tax data for adults

2017
Last year of data

Table of Means for Adults Residing on Tribal Reservations in 1989

	AIAN		Non AIAN	
	W/Casino	W/O Casino	W/Casino	W/O Casino
Adult's Earnings	15,430	16,240	19,240	19,410
	(14,690)	(15,660)	(25,400)	(24,070)
Adult's Total Income	17,270	17,780	27,290	26,420
	(17,620)	(17,650)	(56,110)	(86,400)
Cash Transfer Exists	0.2462	N/A	0.4377	N/A
	(0.4308)		(0.4961)	

Publicly available data

	1990	2000	2010
AI poverty rate	0.325	0.276	0.27
AI per capita inc	14,300	20,400	21,500
All races per capita inc	23,800	22,300	24,600

Empirical Specification - Adults

We seek to estimate the effects of tribal gaming on (1) all local residents; (2) AI residents, who we assume to be predominantly tribal members; (3) tribal members residing away from the reservation. We fix residence in 1989 to avoid bias coming from selective mobility

The basic DDD specification compares residents on tribal lands that have gaming operations (cash transfer) to those that do not (yet) have those operations (cash transfers).

$$Y_{it} = \alpha + \beta * Casino_{it} + \gamma * Cash_{it} + \delta * AI_i * Casino_{it} + \vartheta * AI_i * Cash_{it} + \mu_i + \tau_t + \varepsilon_{it}$$

μ_i is person-specific fixed effect

τ_t is year-specific fixed effect

SEs are clustered on the county of residence

Outcomes for adults: household adjusted gross income (AGI); positive earnings reported in W&S; marital status; N children

Estimated with TWFE and C&S staggered D-in-D estimator for Ais

Cash transfers are only possible in the presence of a casino; thus the total effects of casino and cash transfer is beta+gamma

Empirical Specification - Children

We consider children "treated" to the casino if they were younger than 18 at the time the casino opened AND their parents lived on tribal lands in 1989.

Because outcomes are measured in adulthood, children are either treated or not treated.

Thus, the comparison is between children from the same cohort, some of whom are from counties that were treated to a casino (cash transfer) by the time those children were 18 and some are from counties that were not treated by the time they were 18.

$$Y_{ijc} = \alpha + \beta * Casino_{jc} + \gamma * Cash_{jc} + \delta * Casino_{jc} * AI_i + \vartheta * Cash_{jc} * AI_i$$
$$+\rho * AI_i + \theta_i + \mu_j + \tau_{jc} + \varepsilon_{ijc}$$

Where θ_i is a birth cohort dummy, μ_j is mother's or father's tribe fixed effect, and τ_{jc} is the year in which the outcome is measured

Outcomes of interest are: earnings from W2 and 1040 SE forms; AGI; marital status; self-employment; educational attainment

Parents' Outcomes

Results on Reservation: Casino and Transfers

	Log Income	Log Income	Employed	Employed	# Kids	# Kids	Married	Married
Casino	-0.0289**	-0.0278**	0.00377*	0.00349	0.0231**	0.0220**	-0.00091	-0.0016
	(0.0105)	(0.0103)	(0.00215)	(0.00221)	(0.0092)	(0.00880)	(0.00315)	(0.0031)
Cash Transfer		-0.0057		0.0012		0.0092		0.0088**
		(0.0114)		(0.0033)		(0.0138)		(0.0037)
Casino x AI	0.157***	0.136***	-0.0498***	-0.0438***	-0.117***	-0.104***	-0.0037	-0.002
	(0.0196)	(.019)	(0.00373)	(0.00340)	(0.0130)	(0.0126)	(0.0049)	(0.0048)
Cash Transfer x AI		0.14***		-0.0381***		-0.078***		-0.0053
		(.0282)		(0.00623)		(0.022)		(0.0055)
Obs	23,230,000	23,230,000	33,120,000	33,120,000	33,120,000	33,120,000	33,120,000	33,120,000
Groups	1,493,000	1,493,000	1,495,000	1,495,000	1,495,000	1,495,000	1,495,000	1,495,000

Note: Includes individual fixed effect, Year fixed effect and a constant. SEs are clustered on the county of residence in 1989. Source: Form 1040, Numident, decennial 2000 and 2010, ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

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Obs	23,230,000	23,230,000	33,120,000	33,120,000	33,120,000	33,120,000	33,120,000	33,120,000
Individuals	1,493,000	1,493,000	1,495,000	1,495,000	1,495,000	1,495,000	1,495,000	1,495,000

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Results on Reservation: Households with Dependent Children

VARIABLES	(1) Log Income	(2) Employed	(3) Married	(4) N Children
Casino	-0.0123	0.00386	0.00356	0.0217*
	(0.0117)	(0.00291)	(0.00349)	(0.0113)
Cash Transfer	-0.00587	0.00425	0.0057*	-0.0231**
	(0.0132)	(0.00333)	(0.00334)	(0.0108)
Casino x AI	0.0842***	-0.0432***	-0.0075	0.0904***
	(0.0192)	(0.00629)	(0.00651)	(0.0185)
Cash Transfer	0.134***	-0.0348***	-0.0097	0.0317
x AI	(0.0267)	(0.00904)	(0.00822)	(0.0258)
Initial Kids?	Yes	Yes	Yes	Yes
Observations	11,160,000	13,940,000	13,940,000	13,940,000
R-squared	0.019	0.140	0.022	0.335
Individuals	632,000	633,000	633,000	633,000

Note: Includes individual fixed effect, Year fixed effect and a constant. SEs are clustered on the county of residence in 1989. Source: Form 1040, Numident, decennial 2000 and 2010, ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Results on Reservation AI only

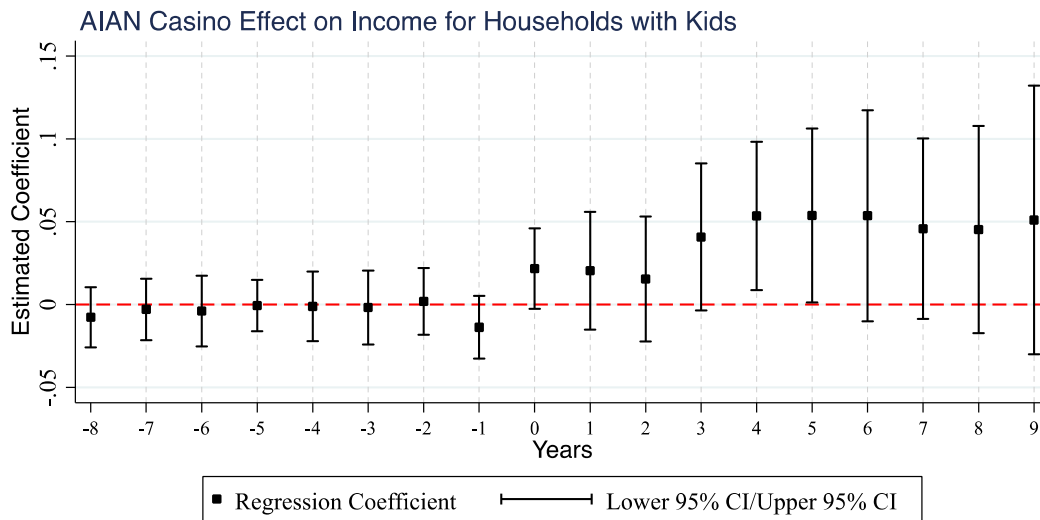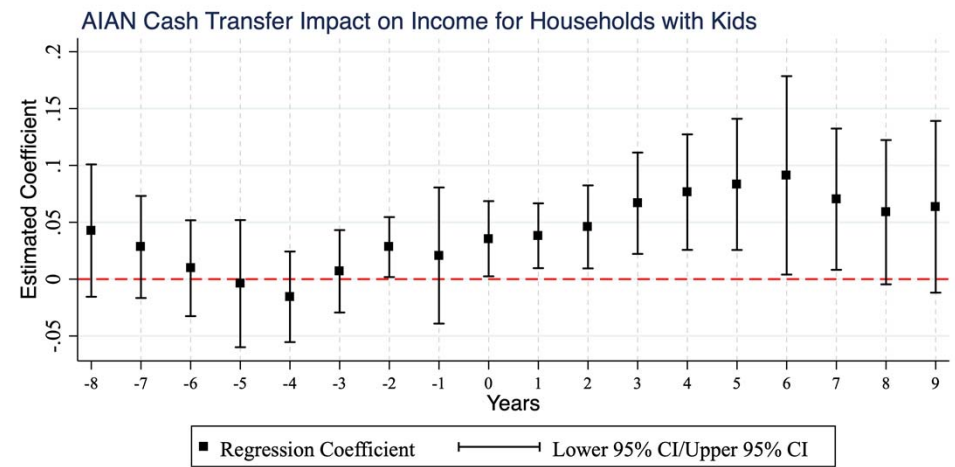| VARIABLES	(1) Log Income	(2) Log Income	(3) Employed	(4) Employed	(5) Children	(6) Children	(7) Married	(8) Married
Casino	0.0105	0.00454	-0.00816*	-0.00676	0.0687***	0.0650***	0.0024	0.002
	(0.0188)	(0.0188)	(0.00445)	(0.00432)	(0.0214)	(0.0201)	(0.0045)	(0.004)
Cash Transfer		0.0744**		-0.0183***		0.0484**		0.005
		(0.0334)		(0.00646)		(0.0241)		(0.006)
Observations	1,454,000	1,454,000	2,090,000	2,090,000	2,090,000	2,090,000	2,090,000	2,090,000
R-squared	0.134	0.134	0.146	0.146	0.079	0.079	0.006	0.006
Individuals	102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000

Note: Includes individual fixed effect, Year fixed effect and a constant. SEs are clustered on the county of residence in 1989. Source: Form 1040, Numident, decennial 2000 and 2010, ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

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Results on Reservation – AI with Children Only

VARIABLES	(1) Log Income	(2) Employed	(3) Married	(4) Children
Casino	0.0285	-0.00311	0.00473	0.0673***
	(0.0196)	(0.00490)	(0.00607)	(0.0196)
Cash transfers	0.102***	-0.0124	0.00148	-0.0159
	(0.0317)	(0.00859)	(0.00856)	(0.0263)
Observations	920,000	1,272,000	1,272,000	1,272,000
R-squared	0.033	0.147	0.024	0.221
Individuals	63,000	63,000	63,000	63,000

Note: Includes individual fixed effect, Year fixed effect and a constant. SEs are clustered on the county of residence in 1989. Source: Form 1040, Numident, decennial 2000 and 2010, ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Staggered DID – Casino and AI AGI

AIAN Casino Effect on Income for Households with Kids

AIAN Cash Transfer Impact on Income for Households with Kids
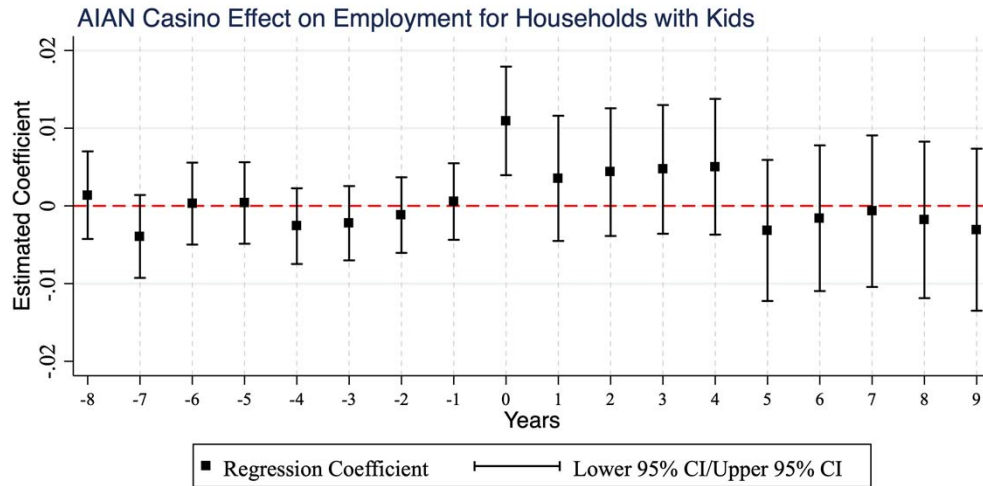
CS estimator results for casino opening

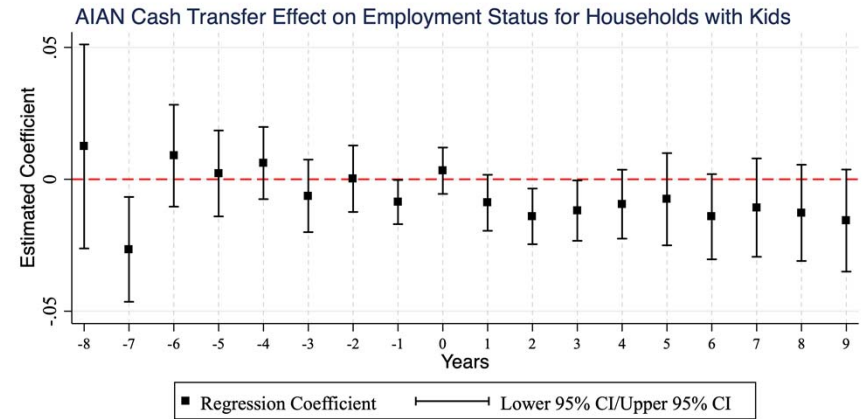CS estimator results for cash transfers. Cash transfers only happen if a casino is operating

On average, cash transfers start about 1.5 years after casino opens

Staggered DID – Casino and AIAN Employment

AIAN Casino Effect on Employment for Households with Kids

CS estimator results for casino opening

AIAN Cash Transfer Effect on Employment Status for Households with Kids

CS estimator results for cash transfers. Cash transfers only happen if a casino is operating

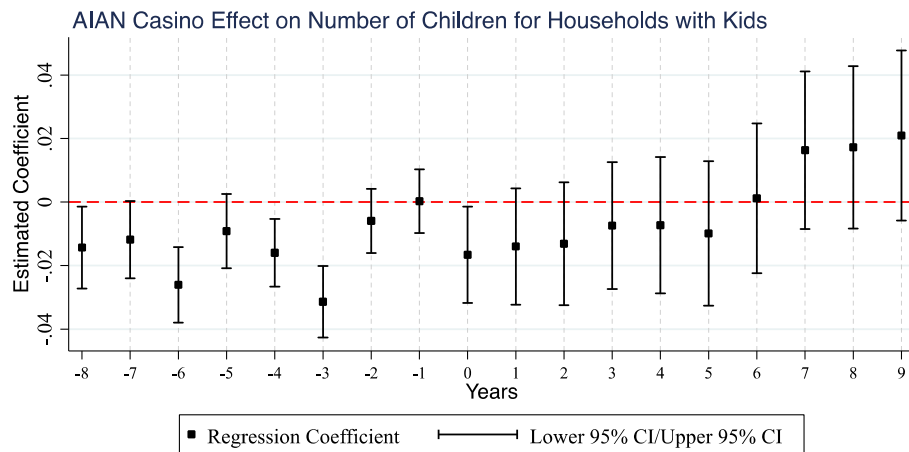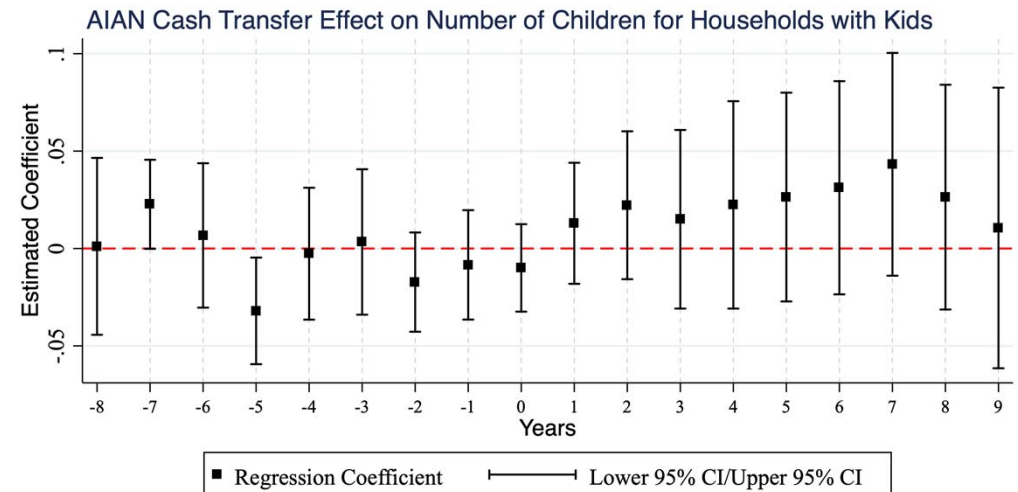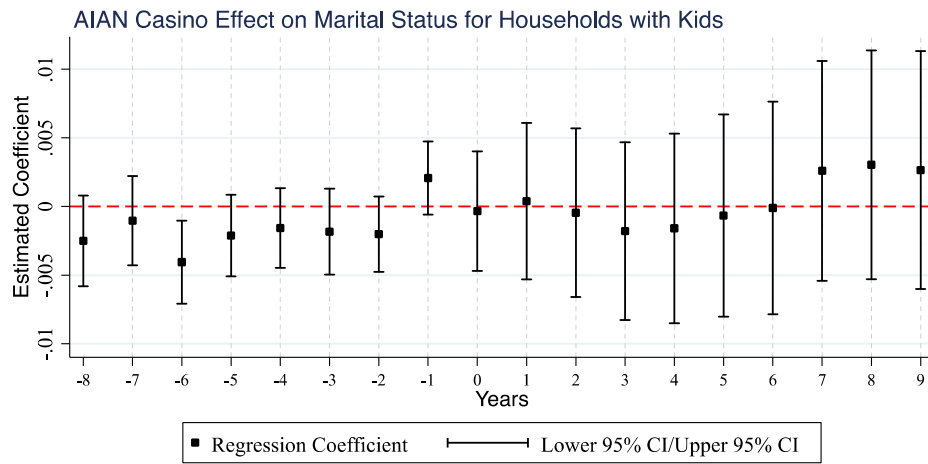# Staggered DID – Casino and AIAN Fertility

CS estimator results for casino opening

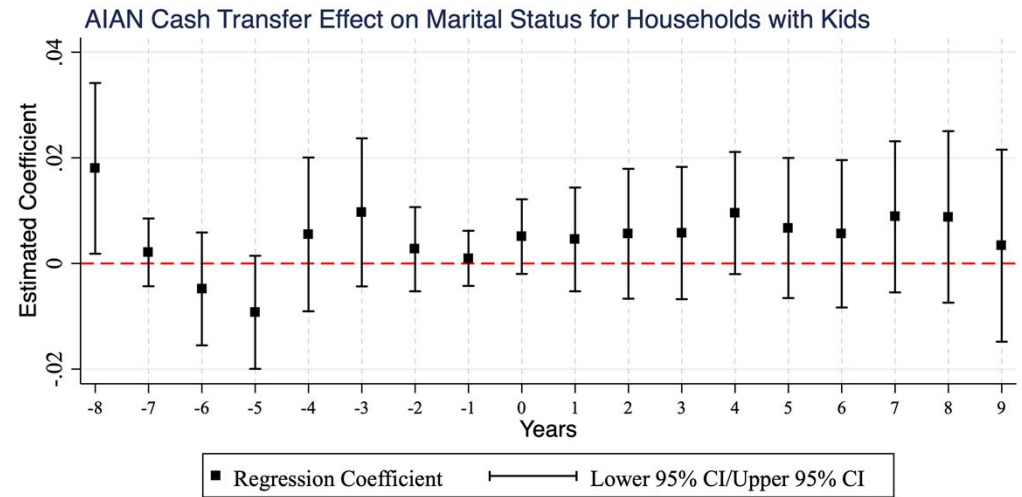CS estimator results for cash transfers. Cash transfers only happen if a casino is operating

Staggered DID – Casino and AIAN Marital Status

AIAN Casino Effect on Marital Status for Households with Kids

CS estimator results for casino opening

AIAN Cash Transfer Effect on Marital Status for Households with Kids

CS estimator results for cash transfers. Cash transfers only happen if a casino is operating

Summary of Findings On-Reservation

- Important to differentiate between casinos with associated cash treatments and those without; average effects mask potentially large differences

- Opening a casino has strong positive effects on AI income; Effects on non-AI earnings are slightly negative

- Cash transfers have additional positive effects on AI incomes; no associated effects on non-AI households

- Cash transfers increase fertility among AIs who already had children in 1989

Parents' Outcomes for Off-Reservation

Results off Reservation AI Only: Adults

VARIABLES	(1) Log Income	(2) Log Income	(3) Employed	(4) Employed	(5) Married	(6) Married	(7) N Children	(8) N Children
Casino	0.0131*	0.0145**	-0.000962	-0.00474	0.00551	0.00717***	-0.0128*	0.00385
	(0.00773)	(0.00707)	(0.00312)	(0.00288)	(0.00345)	(0.00266)	(0.00684)	(0.00676)
Cash Transfer	0.0817***	0.0724***	0.00173	-0.00691	0.0135**	0.00863	0.00134	-0.00668
	(0.0155)	(0.0122)	(0.00599)	(0.00623)	(0.00615)	(0.00535)	(0.0139)	(0.0191)
Children?	No	Yes	No	Yes	No	Yes	No	Yes
Observations	2,764,000	4,393,000	4,272,000	6,237,000	4,272,000	6,237,000	4,272,000	6,237,000
R-squared	0.680	0.659	0.450	0.478	0.532	0.593	0.590	0.547

Note: Includes individual fixed effect, Year fixed effect and a constant. Only individuals who identified their tribe in the 2000 Census and lived off tribal lands in 1989. Source: Form 1040, Numident, decennial 2000 and 2010, ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

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Results off Reservation AI Only: Adults

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Summary of Findings for Adults Off Reservation

- Childless AI adults living off reservation experience positive income effects from casino openings

- Note we do not account for differential mobility on/off reservation after casino openings

- Everyone's AGI increases substantially with cash transfers, but approximately the same %

- Cash transfers also slightly increase the probability of marriage among those who initially do not have children

Children's Outcomes as Adults

Child Outcomes: AIAN children alone

VARIABLES	(1) Log Income	(2) Log Income	(3) Working	(4) Working	(5) Married	(6) Married
Casino	-0.0442	-0.0822**	-0.0542**	-0.0530*	0.0176	0.00955
	(0.0411)	(0.0372)	(0.0262)	(0.0285)	(0.0213)	(0.0259)
Cash Transfer		0.209***		-0.00677		0.0461*
		(0.0499)		(0.0378)		(0.0249)
Observations	210,000	210,000	271,000	271,000	271,000	271,000
R-squared	0.095	0.095	0.185	0.185	0.071	0.071

Note: Child working indicator is based on the presence of W2/1099 on file for that child or an SE filing. Source: Numident, IRS 1040, decennial 2000 and 2010, and ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Child Outcomes for AIAN and Non-AIAN

VARIABLES	(1) Log Income	(2) Log Income	(3) Working	(4) Working	(5) Married	(6) Married
AIAN	-0.321***	-0.323***	-0.0471***	-0.0471***	-0.141***	-0.142***
	(0.0480)	(0.0483)	(0.00868)	(0.00868)	(0.0168)	(0.0169)
Casino	0.0380*	0.0443	-0.00465	-0.00566	0.0128	0.0115
	(0.0206)	(0.0272)	(0.00636)	(0.00659)	(0.00920)	(0.0123)
AIAN x Casino	-0.146**	-0.259***	-0.0275**	-0.0235	-0.0249	-0.0439**
	(0.0610)	(0.0635)	(0.0131)	(0.0143)	(0.0191)	(0.0202)
Cash Transfer		-0.00627		0.00195		0.00465
		(0.0266)		(0.00790)		(0.0111)
AIAN x Cash		0.327***		-0.0114		0.0572***
Transfer		(0.0821)		(0.0195)		(0.0216)
Observations	2,207,000	2,207,000	2,531,000	2,531,000	2,531,000	2,531,000
R-squared	0.079	0.08	0.24	0.24	0.071	0.071

Note: Child working indicator is based on the presence of W2/1099 on file for that child or an SE filing. Source: Numident, IRS 1040, decennial 2000 and 2010, and ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

United States® Census Bureau

Child Outcomes for AIAN and Non-AIAN

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AIAN	-0.321***	-0.323***	-0.0471***	-0.0471***	-0.141***	-0.142***
	(0.0480)	(0.0483)	(0.00868)	(0.00868)	(0.0168)	(0.0169)
Casino	0.0380*	0.0443	-0.00465	-0.00566	0.0128	0.0115
	(0.0206)	(0.0272)	(0.00636)	(0.00659)	(0.00920)	(0.0123)
AIAN x Casino	-0.146**	-0.259***	-0.0275**	-0.0235	-0.0249	-0.0439**
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		(0.0266)		(0.00790)		(0.0111)
AIAN x Cash Transfer		0.327***		-0.0114		0.0572***
		(0.0821)		(0.0195)		(0.0216)
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R-squared	0.079	0.08	0.24	0.24	0.071	0.071

Note: Child working indicator is based on the presence of W2/1099 on file for that child or an SE filing. Source: Numident, IRS 1040, decennial 2000 and 2010, and ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Child Outcomes for AIAN and Non-AIAN

VARIABLES	(1) Log Income	(2) Log Income	(3) Working	(4) Working	(5) Married	(6) Married
AIAN	-0.321***	-0.323***	-0.0471***	-0.0471***	-0.141***	-0.142***
	(0.0480)	(0.0483)	(0.00868)	(0.00868)	(0.0168)	(0.0169)
Casino	0.0380*	0.0443	-0.00465	-0.00566	0.0128	0.0115
	(0.0206)	(0.0272)	(0.00636)	(0.00659)	(0.00920)	(0.0123)
AIAN x Casino	-0.146**	-0.259***	-0.0275**	-0.0235	-0.0249	-0.0439**
	(0.0610)	(0.0635)	(0.0131)	(0.0143)	(0.0191)	(0.0202)
Cash Transfer		-0.00627		0.00195		0.00465
		(0.0266)		(0.00790)		(0.0111)
AIAN x Cash Transfer		0.327***		-0.0114		0.0572***
		(0.0821)		(0.0195)		(0.0216)
Observations	2,207,000	2,207,000	2,531,000	2,531,000	2,531,000	2,531,000
R-squared	0.079	0.08	0.24	0.24	0.071	0.071

Note: Child working indicator is based on the presence of W2/1099 on file for that child or an SE filing. Source: Numident, IRS 1040, decennial 2000 and 2010, and ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Child Outcomes for Men Alone

VARIABLES	(1) Log Income	(2) Working	(3) Married
AIAN	-0.333***	-0.0641***	-0.128***
	(0.0504)	(0.0111)	(0.0163)
Casino	0.0568*	-0.00153	0.0118
	(0.0297)	(0.00816)	(0.0147)
AIAN x Casino	-0.265***	-0.0247	-0.0373*
	(0.0659)	(0.0172)	(0.0193)
Cash Transfer	-0.0141	0.00363	-0.00522
	(0.0261)	(0.00932)	(0.0110)
AIAN x Cash Transfer	0.320***	-0.0191	0.0493**
	(0.0905)	(0.0232)	(0.0200)
Observations	1,110,000	1,299,000	1,299,000
R-squared	0.082	0.266	0.067

Note: Child working indicator is based on the presence of W2/1099 on file for that child or an SE filing. Source: Numident, IRS 1040, decennial 2000 and 2010, and ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Child Outcomes for Women Alone

VARIABLES	(1) Log Income	(2) Working	(3) Married
AIAN	-0.314***	-0.0284***	-0.156***
	(0.0491)	(0.00835)	(0.0190)
Casino	0.0300	-0.0106	0.0123
	(0.0278)	(0.00832)	(0.0135)
AIAN x Casino	-0.254***	-0.0241*	-0.0500**
	(0.0652)	(0.0136)	(0.0232)
Cash Transfer	0.00284	0.00109	0.0138
	(0.0339)	(0.00952)	(0.0174)
AIAN x Cash Transfer	0.332***	-0.00338	0.0652***
	(0.0788)	(0.0185)	(0.0250)
Observations	1,097,000	1,232,000	1,232,000
R-squared	0.080	0.218	0.067

Note: Child working indicator is based on the presence of W2/1099 on file for that child or an SE filing. Source: Numident, IRS 1040, decennial 2000 and 2010, and ACS 2005-2017. Census DRB authorization number CBDRB-FY2023-CES005-006.

Summary

- We construct a novel data source to study a complex intervention of economic stimulation combined with cash payments
  - AI populations are simultaneously disadvantaged and understudied
  - While not perfect, the data allow for measurement of impacts not possible before
- Casino operations improved incomes, wages, and fertility for AIAN adults who lived in reservation tracts and zip codes in 1989; they have relatively smaller negative impacts on the probability of filing a tax return (which we call employment)
- For AI adults covered by a per cap plan off reservation in 1989, wages (for singletons and men) and income improved (possibly through mobility), while there was a precise 0 estimate on labor force participation
- Children of AI parents who resided on reservation lands in 1989 experienced higher individual income and lower probability of filing a W2 or 1099

Tribes and Casinos
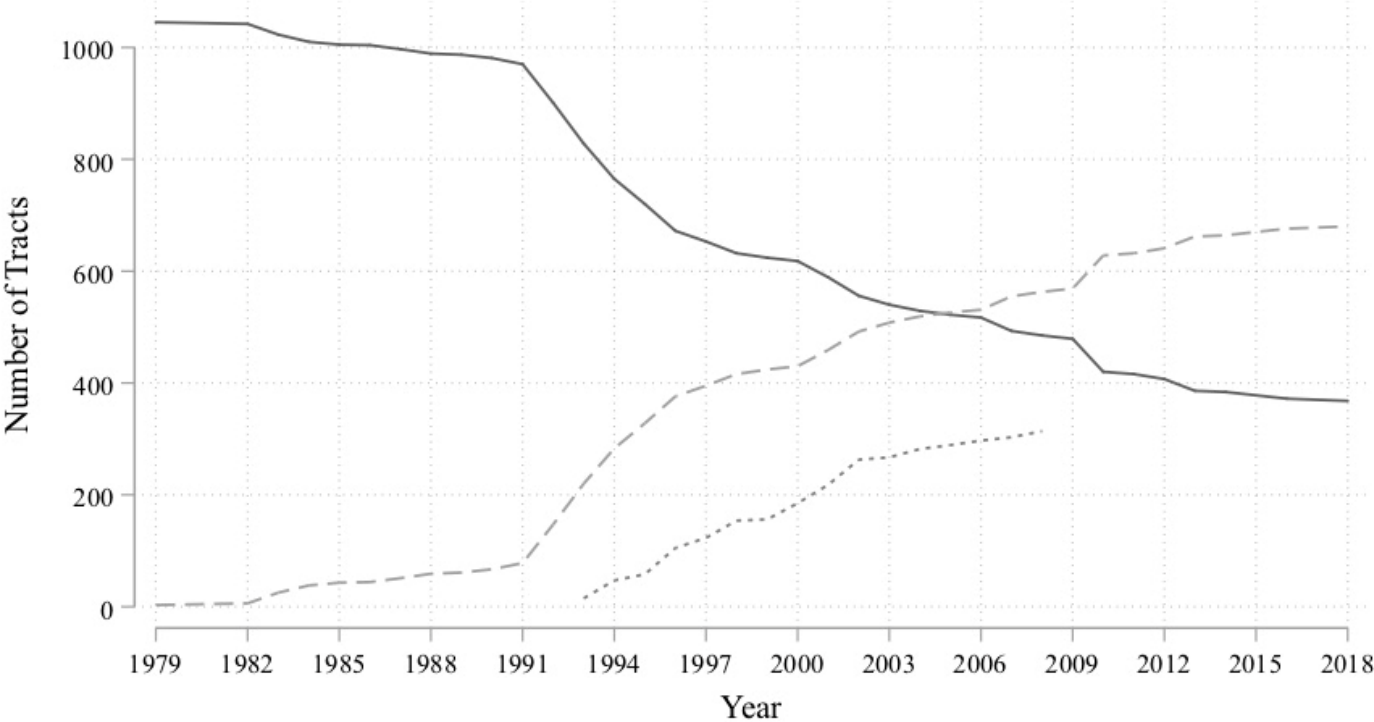
Table of Means for Children Whose Parent Lived on Tribal Reservations

	AIAN Children		Non AIAN Children	
	W/Casino	W/O Casino	W/Casino	W/O Casino
Child's Income as	19,320	22,690	32,040	32,250
an Adult	(40,290)	(36,870)	(84,870)	(141,700)
Child Working	0.4712	0.4853	0.5365	0.5389
	(0.499)	(0.4998)	(0.498)	(0.498)
Child Married	0.157	0.1789	0.2767	0.2923
	(0.364)	(0.38)	(0.4474)	(0.4548)
Cash Transfer Exists	0.1571	N/A	0.5531	N/A
	(0.3639)		(0.4972)	
Birth Cohort	1987	1988	1988	1988
	(5.764)	(5.915)	(6.196)	(6.1960)
Age at Intervention	14.38	N/A	9.702	N/A
	(10.44)		(9.913)	
Teen Birth	0.06048	0.06011	0.03987	0.04347
	(0.2384)	(0.2377)	(0.1956)	(0.2039)

Staggered DID – Casino and AIAN Earnings
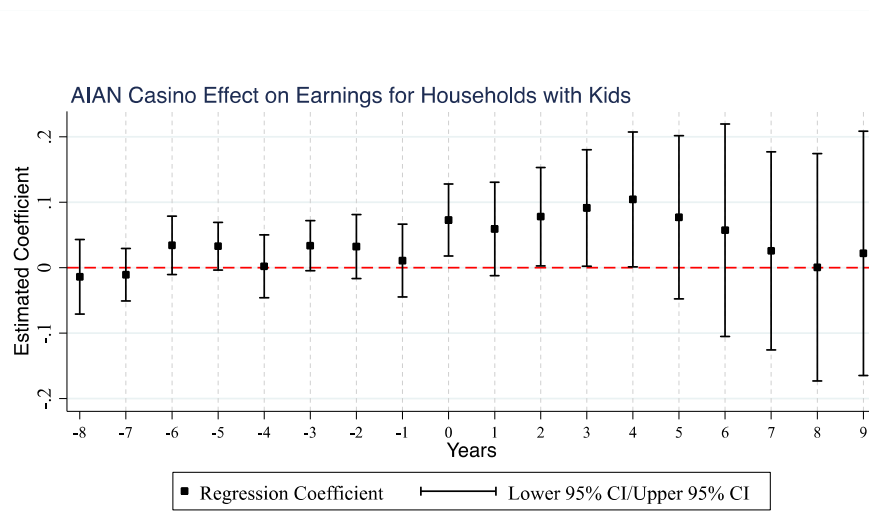
CS estimator results for casino opening
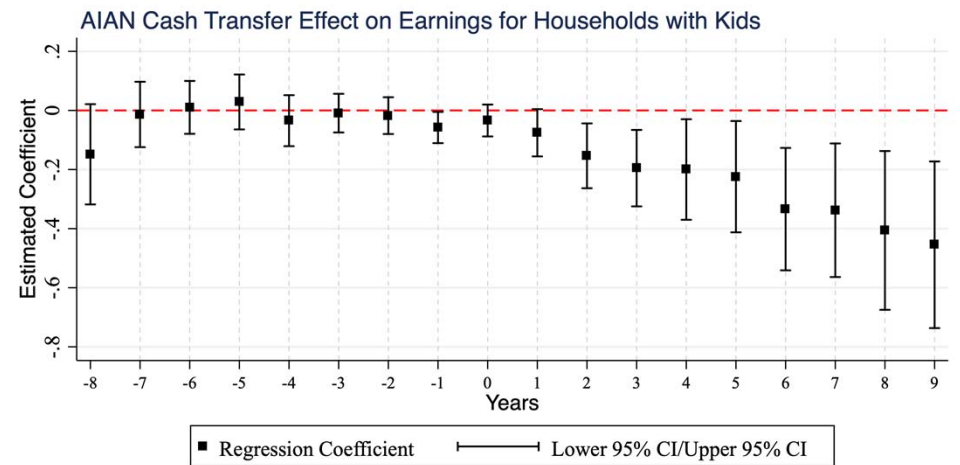
CS estimator results for cash transfers. Cash transfers only happen if a casino is operating

Means Table Changes in Reservation Conditions Over Time

	1990	2000	2010
High School Graduate Only (Age 25 Above) All Races	0.322	0.344	0.345
High School Graduate Only (Age 25 Above) AI Alone	0.321	0.34	0.348
BA Graduate or Higher (Age 25 Above) All Races	0.103	0.081	0.115
BA Graduate or Higher (Age 25 Above) AI Alone	0.031	0.054	0.075
Per Capita Income (2022 $) All Races	23,826	22,284	24,592
Per Capita Income (2022 $) AI Alone	14,311	20,373	21,503
Family Poverty Rate All Races	0.194	0.244	0.241
Family Poverty Rate AI Alone	0.325	0.276	0.27
Unemployment Rate All Races	0.138	0.176	0.185
Unemployment Rate AI Alone	0.236	0.213	0.231

Source: Census decennial 1990, 2000 and 2010, Public Use Data