# **Online Appendix for**

# **Religious Festivals and Economic Development:** Evidence from the Timing of Mexican Saint Day Festivals

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### Appendix A. Data Appendix

Replication data and code are available in Montero and Yang (2022). For the purposes of replication documentation, we list every data set used in the paper, the corresponding citation, access modality, and source location.

By original data, we mean the data exactly as downloaded from the source. By analysis data, we mean data modified for our analysis; this is provided in cases where we are unable to directly provide access to the original data (because of access permissions). We describe in each case the process for acquiring access to the original data; we also provide the do files for creating the analysis data from the original data in Montero and Yang (2022).

#### A.1. Patron Saint and Festival Date Data

As discussed in the main text, in our empirical analyses we assign patron saint celebration dates as prescribed by the Vatican (or, in a minority of cases, official religious sources outside of Mexico) so as to reduce concerns about the endogeneity of festival dates. In this section, we describe the sources we used to determine: 1) official patron saint celebration dates, and 2) the patron saint celebrated by each municipality.

#### A.1.1. Official Patron Saint Celebration Dates

- a. We use three main sources to determine official patron saint celebration dates. 94.83% of municipalities have saints that are sourced using one of these three sources (in order of the frequency with which we used the source):
  - i. The General Roman Calendar (Calendarium Romanum) (Catholic Church, 1969):
    - Catholic Church (1969). Calendarium Romanum (1969)
  - ii. The Roman Martyrology (Martirologio Romano) (Catholic Church, 1956):
    - Catholic Church (1956). Martirologio Romano (1956)
  - iii. The Book of Saints (Watkins, 2015):
    - Watkins, Basil. *The Book of Saints: A Comprehensive Biographical Dictionary*, Bloomsbury Publishing Plc (2015)
  - b. In a small number of cases an official patron saint celebration date was not found in the sources above. In these cases, we use a variety of online religious sources cited below. We ensured that we had least two online sources per saint. Only 3.44% of municipalities have saints that are sourced using online sources.

#### A.1.2. Determining Patron Saints for Municipalities in Mexico:

- 1. We use three primary sources to identify the patron saint of each municipality:
  - a. Encyclopedia: We use the online Encyclopedia of Municipalities (INAFED, 1988, available at http://www.inafed.gob.mx/work/ enciclopedia/) to determine the patron saint for approximately 1,900 of the municipalities in Mexico.
  - b. **Direct Phone Calls to Municipalities:** We called approximately 300 municipalities to determine their patron saint. When calling municipalities, we first attempted to contact municipality government offices, followed by local churches and schools. To verify the accuracy of the information given to use over the phone, we also provide additional sources in the form of online links for over half of the "called" municipalities.
  - c. Additional Online Sources: In cases where we could not contact anyone with phone calls, and we did not find any information in the Encyclopedia, we used online sources such as news articles and government websites. We required at least two web sources before determining the saint. We use websites as sources for 180 municipalities.

#### A.1.3. Coding Patron Saint Dates

We used the following guidelines when coding patron saint dates:

- i. We use a missing value code, 98, to indicate that the festival is a "moving festival", one for which the official date differs from year to year. 4.19% of municipalities in Mexico have moving festivals, and are considered missing from our dataset for analysis.
- ii. In cases where the festival is not moving but spans a few days we use the first date of the festival. For example, "Día de los Muertos" is a two-day festival from November 1-2. We use November 1<sup>st</sup> as the official date. We assume that any diversion of resources, time, etc. due to a festival would have already happened by the first date of the range.
- iii. In some cases, our research indicates that a municipality celebrates a particular Vatican-recognized saint, but has renamed it for the purpose of calling this saint their patron saint. In these cases, we consider the original Vatican-recognized saint as the municipality's saint, and use the Vatican-prescribe official celebration date (as usual). We detail these cases and the sources used to determine these "renamed" saints below in Section A.1.4.

- iv. In some cases, municipalities in Mexico celebrate a "local" saint: a saint that is not recognized or celebrated outside of that municipality in Mexico. Because these saints might be endogenously selected, we provide a variable that codes whether or not a saint is a "local saint". The variable "local\_saint" has three possible values: 0,1,2. A saint is coded as "o" if the official celebration date of a saint is set outside of Mexico. A saint is coded as "1" if the saint is found to be specific to Mexico, and thus not have an official celebration date that is set outside of Mexico (1.67% of municipalities in Mexico). A "2" indicates the saint has indeterminate origins (1.71% of municipalities in Mexico). (Our main analyses do not include municipalities with "local" saints, but we show robustness of our results to including them. When we include municipalities with local saints in our robustness analyses, we use celebration dates actually used by municipalities, since "official" Vatican-prescribed celebration dates do not exist for such saints.)
- v. We use another missing value code, 99, to indicate a municipality where a saint was found in the encyclopedia or via phone calls but we were unable to find credible sources corroborating an official date or saint. This occurred in four municipalities across all of Mexico.
- vi. We also use the missing value code 99 to represent municipalities for which we were unable to determine any Saint. In one municipality, this was because the municipality does not celebrate a patron saint. For the remaining 20 missing saint days, we were unable to determine a patron with credible online sources or phone calls.

#### A.1.4. Information on "Renamed" Patron Saints

Below, we detail the specific "renamed" saints that our research indicates are simply venerations of another official Vatican-recognized saint, the municipality code where they occur, and the sources used to determine this.

- Acatlan in Veracruz de Ignacio de la Llave (clave: 30002) celebrates la Virgen de los Remedios which is the same saint as la Natividad de Maria (Díaz 2018), (VistasGallery, n.d), (Sistema de Información Cultura 2021).
- Agualeguas in Nuevo Leon celebrates la Virgen de Agualeguas (clave: 19002) which is the same saint as la Virgen de la Concepcion (Nuevo Leon, n.d), (Nuevo Leon Turismo, n.d)
- Apizaco in Tlaxcala (clave: 29005) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).

- Atlacomulco in Mexico (clave: 15014) celebrates el Senor del Huerto which is the same saint as Lunes Santo (Turismo Ejea, n.d).
- Atlamajalcingo del Monte in Guerrero (clave: 12009) celebrates la Virgen de Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Bustamante in Nuevo Leon (clave: 19008) celebrates Santo Cristo (el Senor de Tlaxcala) which is the same saint as el Transfiguracion del Senor (Lemus 2016), (Pueblos Mágicos, n.d), (Villarreal 2006).
- Canitas de Felipe Pescador in Zacatecas (clave: 32006) celebrates la Virgen de San Juan which is the same saint as la Asuncion de Maria (Holy Family Catholic Church, n.d), (Library of Congress, n.d), (IMER 1970).
- Charcas in San Luis Potosi (clave: 24015) celebrates la Virgen de las Charcas which is the same saint as Natividad de Maria (Eichmann-Oehrli 2004), (De la Rosa, 2020).
- Compostela in Nayarit (clave: 18004) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Cunduacan in Tabasco (clave: 27006) celebrates el Senor de la Salud which is the same saint as Cristo de la Salud (Valdemoro Turismo 2020).
- Emiliano Zapata in Hidalgo (clave: 13021) celebrates la Virgen de San Juan de los Lagos which is the same saint as la Asuncion de Maria (Holy Family Catholic Church, n.d), (Library of Congress, n.d), (IMER 1970).
- Espita in Yucatan (clave: 31032) celebrates el Nino Jesus which is the same saint as Nino de Atocha (Rodriguez 2018), (Sistema de Información Cultural de Costa Rica 2021), (Divino Nino Jesus Catholic Mission 2021)
- Huamantla in Tlaxcala (clave: 29013) celebrates la Virgen de la Caridad which is the same saint as Natividad de Maria (ZENIT 2014), (Ruiz Scaperlanda, 2007), (Lamas 2004).
- Huatlatlauca in Puebla (clave: 21070) celebrates Nuestra Senora de los Reyes which is the same saint as Asuncion de Maria (Catedral de Sevilla 2020), (Real Hermandad de Nuestra Senora de los Reyes, n.d), (Catedral de Sevilla 2020), (A.VRyS, n.d).
- Huiramba in Michoacan de Ocampo (clave: 16039) celebrates el Nino Jesus which is the same saint as Nino de Atocha (Rodriguez 2018), (Sistema de Información Cultural de Costa Rica 2021), (Divino Nino Jesus Catholic Mission 2021).

- Izamal in Yucatan (clave: 31040) celebrates la Virgen de Izamal which is the same saint as Virgen de la Concepcion (SSVM, n.d), (Yucatan Today 2019), (Pueblos Mágicos, n.d).
- Jonuta in Tabasco (clave: 27011) celebrates el Senor de la Salud which is the same saint as Cristo de la Salud (Valdemoro Turismo 2020).
- La Concordia in Chiapas (clave: 7020) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Los Reyes de Juarez in Puebla (clave: 21118) celebrates Nuestra Senora de los Reyes which is the same saint as Asuncion de Maria (Catedral de Sevilla 2020), (Real Hermandad de Nuestra Senora de los Reyes, n.d), (Catedral de Sevilla 2020), (A.VRyS, n.d).
- Monterrey in Nuevo Leon (clave: 19039) celebrates la Virgen del Roble which is the same saint as la Virgen de la Esperanza (Díaz 2017), (de Cos 2018).
- Nacajuca in Tabasco (clave: 27013) celebrates la Virgen de los Remedios which is the same saint as la Natividad de Maria (Díaz 2018), (Vistas-Gallery, n.d), (Sistema de Información Cultura 2021).
- Naucalpan de Juarez in Mexico (clave: 15057) celebrates la Virgen de los Remedios which is the same saint as La Natividad de Maria (Díaz 2018), (VistasGallery, n.d), (Sistema de Información Cultura 2021).
- Ocotlan in Jalisco (clave: 14063) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Oteapan in Veracruz de Ignacio de la Llave (clave: 30120) celebrates el Senor de la Salud which is the same saint as Cristo de la Salud (Valdemoro Turismo 2020).
- Patzcuaro in Michoacan de Ocampo (clave: 16066) celebrates la Virgen de la Salud which is the same saint as Virgen de la Concepcion (Roman Catholic Diocese of Chalan Kanoa 2018), (Pátzcuaro Info 2020).
- Reyes Etla in Oaxaca (clave: 20077) celebrates Nuestra Senora de los Reyes which is the same saint as la Asuncion de Maria (Catedral de Sevilla 2020), (Real Hermandad de Nuestra Senora de los Reyes, n.d), (Catedral de Sevilla 2020), (A.VRyS, n.d).
- Sabanilla in Chiapas (clave: 7076) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- San Juan Juquila Mixes in Oaxaca (clave: 20200) celebrates la Virgen de Juquila which is the same saint as la Virgen de la Concepcion (St. Mary Parish 2018), (Ramirez 2019), (Jiménez 2020).

- San Juan del Rio in Durango (clave: 10028) celebrates la Virgen de los Remedios which is the same saint as la Natividad de Maria (Díaz 2018), (VistasGallery, n.d), (Sistema de Información Cultura 2021).
- San Pedro Cholula in Puebla (clave: 21140) celebrates la Virgen de los Remedios which is the same saint as la Natividad de Maria (Díaz 2018), (VistasGallery, n.d), (Sistema de Información Cultura 2021).
- Soyalo in Chiapas (clave: 7085) celebrates la Virgen de la Caridad which is the same saint as la Natividad de Maria (ZENIT 2014), (Ruiz Scaperlanda, 2007), (Lamas 2004).
- Tamazula de Gordiano in Jalisco (clave: 14085) celebrates la Virgen del Sagrario which is the same saint as la Asuncion de Maria (Revista Catedral 1970), (Catedral Primada, n.d).
- Tamiahua in Veracruz de Ignacio de la Llave (clave: 30151) celebrates La Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Tepatitlan de Morelos in Jalisco (clave: 14093) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Tepic in Nayarit (clave: 18017) celebrates la Virgen en su Santuario which is the same saint as la Virgen de Guadalupe (Nayarit en Linea 2013) , (Shrine of Our Lady of Guadalupe, 2021), (Nayarit Enamora, n.d) (NNC 2016), (Presa 2019).
- Tlalnepantla de Baz in Mexico (clave: 15104) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Tonanitla in Mexico (clave: 15125) celebrates la Virgen de los Remedios which is the same saint as la Natividad de Maria (Díaz 2018), (Vistas-Gallery, n.d), (Sistema de Información Cultura 2021).
- Tototlan in Jalisco (clave: 14105) celebrates el Senor de la Salud which is the same saint as Cristo de la Salud (Valdemoro Turismo 2020).
- Union de San Antonio in Jalisco (clave: 14109) celebrates la Virgen de la Misericordia which is the same saint as la Virgen de las Mercedes (ACI Prensa 2020), (Aleteia 2019).
- Villa Union in Coahuila de Zaragoza (clave: 5037) celebrates el Nino de los Peyotes which is the same saint as Dulce Nombre de Jesus (Telepaisa, n.d), (ACI Prensa 2021).
- Zacatecas in Zacatecas (clave: 32056) celebrates la Virgen del Patrocinio which is the same saint as la Natividad de Maria (EcuRed, n.d), (Manresa Ignacio Abadal 1800).

• Zihuateutla in Puebla (clave: 21213) celebrates Manuelito which is the same saint as Corpus Cristi (El Caminante 2019), (Presidencia Municipal de Zihuateutla, n.d).

### A.2. Geographic Data and Variables

- Precipitation and Temperature: Precipitation and temperature data are provided by the Global Climate Database created by Hijmans et al. (2005) and available at http://www.worldclim.org/. These data provide monthly average rainfall in millimeters. We calculate the average rainfall for each month in each municipality and average this over the twelve months to obtain our yearly precipitation measure in millimeters of rainfall per year. Similarly, we calculate the average temperature for each month in each municipality and average the twelve months to obtain our yearly temperature in centigrades.
  - Dataset name: WorldClim 1.4 Climate Data
  - Citation: Hijmans et al. (2005)
  - Access modality: The paper uses the WorldClim 1.4 climate data, which is publicly available data.
  - Source location: The original data sets and documentation can be downloaded at https://worldclim.org/data/v1.4/worldclim14.html. We use the following data sets in generic grid format and 10 minute resolution: "tmean\_10m" and "prec\_10m". For the replication, we provide the original data in the data repository: http://doi.org/10.3886/E161801V1.
  - Note: Original data accessed from https://worldclim.org/data/v1.4/ worldclim14.html on November 1, 2018.
- Land Suitability: Land suitability is the soil component of the land quality index created by the Atlas of the Biosphere available at http://www.sage. wisc.edu/iamdata/ used in Michalopoulos (2012) and Ramankutty et al. (2002). These data use soil characteristics (namely soil carbon density and the acidity or alkalinity of soil) and combines them using the best functional form to match known actual cropland area and interpolates this measure to be available for most of the world at the 0.5 degree in latitude by longitude level. This measure is normalized to be between 0 and 1, where higher values indicate higher soil suitability for agriculture.
  - Dataset name: Atlas of the Biosphere: Suitability for Agriculture
  - Citation: Ramankutty et al. (2002)
  - Access modality: The paper uses the Atlas of the Biosphere: Suitability for Agriculture data, which is publicly available data.

- Source location: The original data sets and documentation can be downloaded at https://nelson.wisc.edu/sage/data-and-models/ atlas/maps.php?datasetid=19&includerelatedlinks=1&dataset=19. For the replication, we provide the original data in the data repository: http://doi.org/10.3886/E161801V1.
- Note: Original data accessed from https://nelson.wisc.edu/sage/ data-and-models/atlas/data.php?incdataset=Suitability%20for% 20Agriculture on November 1, 2015.
- Elevation and Slope: The elevation and slope data are provided by the Global Climate Database created by Hijmans et al. (2005) and available at http://www.worldclim.org/. These data provide elevation information in meters at the 30 arc-second resolution (approximately at the 1  $km^2$  level near the equator). The elevation measure is constructed using NASAs SRTM satellite images (http://www2.jpl.nasa.gov/srtm/).
  - Dataset name: Digital Elevation Data
  - Citation: de Ferranti (2017)
  - Access modality: The paper uses the Digital Elevation data, which is publicly available data.
  - Source location: The original data sets and documentation can be downloaded at https://www.worldpop.org/. We use the following data sets in generic grid format and 3 arc-second resolution: "mex\_srtm\_topo\_100m.tif" and "mex\_srtm\_slope\_100m.tif". For the replication, we provide the original data in the data repository: http: //doi.org/10.3886/E161801V1.
  - Note: Original data accessed from https://www.worldpop.org/ on March 1, 2019.
- **Maize Suitability:** Maize suitability is the average suitability for rain-fed, low-input crops provided by the FAO's Global Agro-Ecological Zones website: http://www.iiasa.ac.at/Research/LUC/GAEZ/index.htm (Fischer et al., 2012). FAO crop suitability model uses data on elevation, precipitation, soil and slope constraints to construct estimates of crop suitability at the 1  $km^2$  level for different crops. We normalized the measure to be between o and 100, where higher values indicate higher crop suitability.
  - Dataset name: Global Agro-Ecological Zones
  - Citation: Fischer et al. (2000)
  - Access modality: The paper uses the Global GAEZ V4 data, which is publicly available data. However, you must register to gain access.

- Source location: The original data sets and documentation can be downloaded using the FAO data portal at http://gaez.fao.org/Main.html. The datasets downloaded are: grid\_maize\_v3.asc, reso2\_crav619ol\_maiz15ob\_cbc.tif, and reso2\_crav619ol\_maiz15ob\_cyc.tif. For the replication, we provide the analysis data in the data repository: http://doi.org/10.3886/ E161801V1.
- Note: Original data accessed from http://gaez.fao.org/Main.html on November 1, 2018.
- Municipal Area, Longitude, Latitude, and Distance to Mexico City: To calculate these municipal variables, we use geographic shapefiles provided by INEGI for municipal boundaries in Mexico: https://www.inegi.org.mx/temas/mg/. Municipal *area* is calculated as the total area of a municipality in  $km^2$ . Municipal *longitude* and *latitude* correspond to the longitude and latitude of the municipalities centroid. *Distance to Mexico City* is defined as the distance in km from a municipality's centroid to Mexico City.
  - Dataset name: Marco Geoestadístico de INEGI
  - Citation: INEGI (2010b)
  - Access modality: The paper uses we use geographic shapefiles provided by INEGI for municipal boundaries in Mexico: <a href="https://www.inegi.org.mx/temas/mg/">https://www.inegi.org.mx/temas/mg/</a>, which is publicly available data. However, you must register to gain access.
  - Source location: The original data sets and documentation can be downloaded at https://www.inegi.org.mx/temas/mg/. The shapefiles downloaded are: "areas\_geoestadisticas\_municipales", "areas\_geoestadisticas\_estatales", and "territorio\_insular". For the replication, we provide the analysis data in the data repository: http: //doi.org/10.3886/E161801V1.
  - Note: Original data accessed from https://www.inegi.org.mx/temas/ mg/ on November 1, 2018.

#### A.3. Mexico Census Data and Indexes

• **Population Census:** We use municipality-level data from the 2010 *Censo de Población y Vivienda* produced by the National Institute of Statistics and Geography (INEGI) of Mexico. For more information on this census, see INEGI documentation at https://www.inegi.org.mx/programas/ccpv/2010/. This census interviewed households with over 106 million total inhabitants across Mexico about their economic well-being, labor supply, asset ownership, and education.

- Dataset name: Censo de Población y Vivienda 2010
- Citation: INEGI (2010a)
- Access modality: The paper uses we uses the municipal-level data provided by INEGI: <a href="https://www.inegi.org.mx/programas/ccpv/2010/">https://www.inegi.org.mx/programas/ccpv/2010/</a>, which is publicly available data. However, you must register to gain access.
- Source location: The original data sets and documentation can be downloaded at https://www.inegi.org.mx/programas/ccpv/2010/.
   For the replication, we provide the analysis data in the data repository: http://doi.org/10.3886/E161801V1.
- Note: Original data accessed from https://www.inegi.org.mx/ programas/ccpv/2010/ on November 1, 2018.

We construct an index of economic development using all questions in the census related to economic development within a municipality. We construct the index as the first principal component of these measures of development. Figure 5 presents the components of this index. The index includes all questions on educational attainment, workforce participation, literacy, asset and ownership. We list each index component and its definition below:

- Log Population: This measures the log of the number of inhabitants for each municipality in 2010.
- Log Household Income: To construct a measure of household income, we use the IPUMS 10% sample and take the log of each adult respondent's household income.<sup>51</sup> We then construct the average for each municipality.
- % Economically Active: Share of a municipality's population that is "economically active", defined by INEGI as: in a given reference week (e.g. previous week), an individual over 12 years of age performed any work (including informal work), had a job but did not work, or were actively looking for work.
- % Economically Active Men: Share of a municipality's population of men over 12 years of age that is economically active.
- % Economically Active Women: Share of a municipality's population of women over 12 years of age that is economically active.
- % Employed: Share of a municipality's population that is "economically occupied", defined by INEGI as: in a given reference week, an individual over 12 years of age performed any work (including informal work) or had a job but did not work.

<sup>&</sup>lt;sup>51</sup>The INEGI municipality-level extract does not include this, but we were able to construct this using the IPUMS extract.

- % Literate Aged 8-14: Share of a municipality's population of individuals aged between 8 and 14 years that know how to read and write.
- % Literate Aged over 14 Years: Share of a municipality's population of individuals aged over 14 years that know how to read and write.
- Average Years of Education All: Average years of education for a municipality's population aged over 15 years.
- Average Years of Education Men: Average years of education for a municipality's population of men aged over 15 years.
- Average Years of Education Women: Average years of education for a municipality's population of women aged over 15 years.
- % in School Aged 3-5: Share of a municipality's population of children between the ages of 3 and 5 that attend at least some school in a year.
- % in School Aged 6-11: Share of a municipality's population of children between the ages of 6 and 11 that attend at least some school in a year.
- % in School Aged 12-14: Share of a municipality's population of individuals between the ages of 12 and 14 that attend at least some school in a year.
- % in School Aged 15-17: Share of a municipality's population of individuals between the ages of 15 and 17 that attend at least some school in a year.
- % in School Aged 18-24: Share of a municipality's population of individuals between the ages of 18 and 24 that attend at least some school in a year.
- % with Some Schooling: Share of a municipality's population over 15 years of age that has attended at least some schooling in their lifetime.
- % Completed Primary Education: Share of a municipality's population over 15 years of age that has completed primary education (6 years).
- % Completed Secondary Education: Share of a municipality's population over 15 years of age that has completed secondary education. (3 additional years)
- % Completed College: Share of a municipality's population over 18 years of age that has completed any form of post-secondary schooling.
- % with At Least Some Primary Education: Share of a municipality's population over 15 years of age that has at least attended and completed some primary education (>o years of schooling).

- % with At Least Some Secondary Education: Share of a municipality's population over 15 years of age that has at least attended and completed some secondary education (>6 years of schooling).
- % Own Radio(s): Share of a municipality's households that own at least one radio.
- % Own Television(s): Share of a municipality's households that own at least one television.
- % Own Refrigerator(s): Share of a municipality's households that own at least one refrigerator.
- % **Own Washing Machine(s):** Share of a municipality's households that own at least one washing machine.
- % Own Car(s): Share of a municipality's households that own at least one car.
- % Own Computer(s): Share of a municipality's households that own at least one computer.
- % Own Telephone(s): Share of a municipality's households that own at least one telephone (landline).
- % Own Cellphone(s): Share of a municipality's households that own at least one cellphone.
- % with Paved Floor: Share of a municipality's households that have non-dirt floors in their households (e.g. cement, wood, tiled, or other).
- % with Electricity: Share of a municipality's households that have access to electric-powered light at their home.
- % with Plumbing: Share of a municipality's households that have water accessed through plumbing from the government ("public network") in their home.
- % **with Toilets:** Share of a municipality's households that have toilets at their home.
- % with Internet: Share of a municipality's households that have access to the internet at their home.

We also use individual-level 2010 population census data available publicly through the IPUMS International project at <a href="https://international.ipums">https://international.ipums</a>. org/international/. The microdata for a 10 percent random sample that contains data on population, employment, employment secotr, earnings and hours worked. We use these variables to construct measures of the share of the population working in various sectors.

- Dataset name: Integrated Public Use Microdata Series, International: Version 7.3

- Citation: INEGI and IPUMS (2020)
- Access modality: The paper uses we uses the micro-data provided by IPUMS: https://international.ipums.org/international/, which is publicly available data. However, the data is non-redistributable; one must register to gain access.
- Source location: The original data sets and documentation can be downloaded at https://international.ipums.org/international/. For the replication, we provide the analysis data in the data repository: http://doi.org/10.3886/E161801V1.
- Note: Original data accessed from https://international.ipums.org/ international/ on September 1, 2019.

#### A.4. Americasbarometer (LAPOP) Data and Indexes

- Data: we use survey data from the Americasbarometer from 2008 to 2018.
  - Dataset name: AmericasBarometer
  - Citation: (LAPOP)
  - Access modality: The paper uses we uses the data provided by The Latin American Public Opinion Project (LAPOP): https://www. vanderbilt.edu/lapop/raw-data.php, which is publicly available data. However, the data is non-redistributable; one must register to gain access.
  - Source location: The original data sets and documentation can be downloaded at https://www.vanderbilt.edu/lapop/raw-data.php. For the replication, we provide the analysis data in the data repository: http://doi.org/10.3886/E161801V1.
  - Note: Original data accessed from https://www.vanderbilt.edu/ lapop/raw-data.php on September 1, 2019.

To examine differences in religiosity, we construct an index from three questions related to religiosity: the importance of religion to an individual, church attendance, and religious group attendance. We construct our index as the first principal component of these questions; we describe each question/component below.

- Importance of Religion: is a 1-4 categorical variable that measures how important religion is to a respondent, ranging from 1="Not Important at All" to 4="Very Important".
- Church Attendance: is a 1-4 categorical variable that measures how frequently an individual goes to church, where 1="Never", 2="Once or Twice a Year", 3="Once or Twice a Month", and 4="Once a Week".

Religious Group Attendance: is a 1-4 categorical variable that measures how frequently an individual participates in religious group meetings, ranging from 1="Never" to 4="Once a Week".

To examine differences in social capital, we construct an index using questions related to the frequency of attending various group meetings. We include questions on the following groups: community improvement groups, parent associations, municipal meetings, or political associations.<sup>52</sup> Each group meeting question is a 1-4 categorical variable that measures how frequently an individual goes to meetings for each group – where 1="Never", 2="Once or Twice a Year", 3="Once or Twice a Month", and 4="Once a Week" – except for municipal meetings, which is an indicator variable equal to 1 if the respondent attends municipal meetings. We construct our index as the first principal component of these questions.

### A.5. Colonial-Era Data

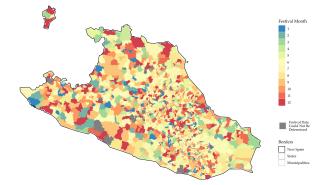
- **Data:** we use data provided by Sellers and Alix-Garcia (2018) for colonial-era covariates used in the analysis.
  - Dataset name: Replication\_data\_JDE
  - Citation: Sellers and Alix-Garcia (2018)
  - Access modality: The paper uses we uses the replication data provided by Sellers and Alix-Garcia (2018) https://drive.google.com/file/d/1\_TSFfoLvpokCZeGbomSt27W6gpz47clF/view, which is on-redistributable data but is publicly available data provided by the authors for Elsevier subscribers.
  - Source location: The original data sets and documentation can be downloaded at https://drive.google.com/file/d/1\_ TSFfoLvpokCZeGbomSt27W6gpz47clF/view. For the replication, we provide the analysis data in the data repository: http://doi.org/10.3886/E161801V1.
  - Note: Original data accessed from authors on June 4, 2019.

<sup>&</sup>lt;sup>52</sup>These are the groups listed in each wave of the data.

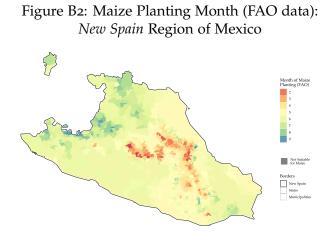
## Appendix B. Additional Maps

### B.1. Additional Maps – New Spain

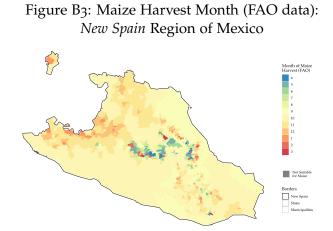
Figure B1: Saint Day Festival Months: New Spain Region of Mexico



*Notes:* The map presents the month that each municipality in the New Spain region of Mexico celebrates its respective Catholic patron saint day festival. Municipalities where we were unable to determine the festival date are shaded in dark grey. Borders of New Spain region of colonial Mexico are as defined by Gerhard (1993). See Appendix A.1 for more information on the construction of the festival date dataset.



*Notes:* Optimal maize planting month according to FAO GAEZ data in the New Spain region of Mexico.



*Notes:* Optimal maize harvest month according to FAO GAEZ data in the New Spain region of Mexico.

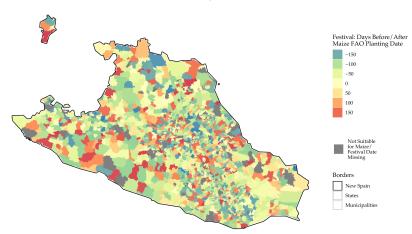
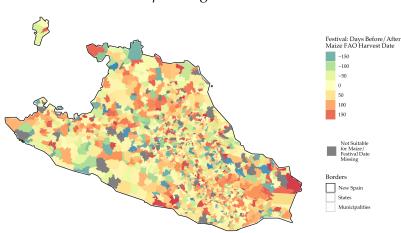


Figure B4: Days Between Festival and Optimal Planting Date: *New Spain* Region of Mexico

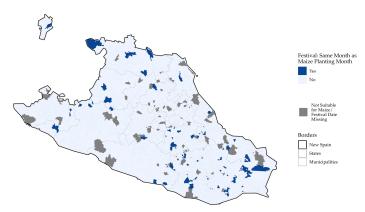
*Notes:* Difference (in days) between the patron saint day festival date and the optimal maize planting date (from FAO GAEZ data) for each municipality in the New Spain region of Mexico. (Negative values correspond to festivals that occur before planting; positive values correspond to festivals that occur after planting.) Municipalities where we were unable to determine the festival date are shaded in dark grey.



### Figure B5: Days Between Festival and Optimal Harvest Date: *New Spain* Region of Mexico

*Notes:* Difference (in days) between the patron saint day festival date and the optimal maize harvest date (from FAO GAEZ data) for each municipality in the New Spain region of Mexico. (Negative values correspond to festivals that occur before harvest; positive values correspond to festivals that occur after harvest.) Municipalities where we were unable to determine the festival date are shaded in dark grey.

### Figure B6: Coincidence of Festivals and Optimal Planting Month: *New Spain* Region of Mexico



*Notes:* The map presents whether the month that each municipality in the *New Spain* region of Mexico celebrates its respective patron saint day festival falls o-30 days prior to the optimal maize planting date according to FAO GAEZ data. Municipalities where we were unable to determine the festival date are shaded in dark grey.

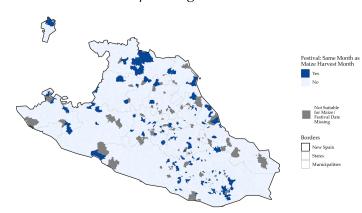


Figure B7: Coincidence of Festivals and Optimal Harvest Month: *New Spain* Region of Mexico

*Notes:* The map presents whether the month that each municipality in the *New Spain* region of Mexico celebrates its respective patron saint day festival falls o-30 days after the optimal maize harvest date according to FAO GAEZ data. Municipalities where we were unable to determine the festival date are shaded in dark grey.

## B.2. Additional Maps – All of Mexico

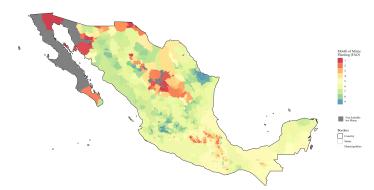
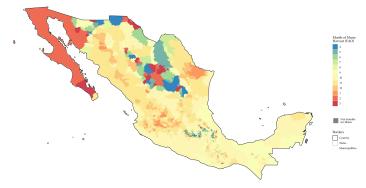


Figure B8: Maize Planting Date (FAO data)

*Notes:* Optimal maize planting month according to FAO GAEZ data for each municipality in Mexico.

Figure B9: Maize Harvest Date (FAO data)



*Notes:* Optimal maize harvest month according to FAO GAEZ data for each municipality in Mexico.



Figure B10: Coincidence of Festivals and Optimal Planting Month

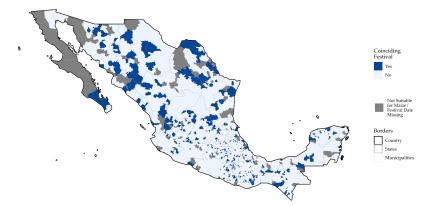
*Notes:* The map presents whether the date that each municipality in Mexico celebrates its respective patron saint day festival falls o-30 days prior to the optimal maize planting date according to FAO GAEZ data. Municipalities where we were unable to determine the festival date or are unsuitable for maize are shaded in dark grey.

Figure B11: Coincidence of Festivals and Optimal Harvest Month



*Notes:* The map presents whether the date that each municipality in Mexico celebrates its respective patron saint day festival falls o-30 days after the optimal maize harvest date according to FAO GAEZ data. Municipalities where we were unable to determine the festival date or are unsuitable for maize are shaded in dark grey.

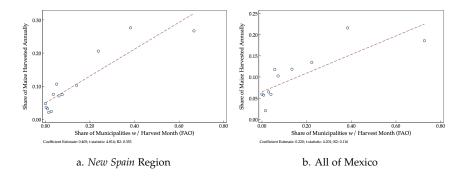
Figure B12: Agriculturally-Coinciding Festivals



*Notes: Coinciding Festival* is equal to "Yes" if the saint day festival in a municipality occurs either o to 30 days prior to the optimal maize planting date or o to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data and "No" otherwise for each municipality in Mexico. Municipalities where we were unable to determine the festival date or are unsuitable for maize are shaded in dark grey.

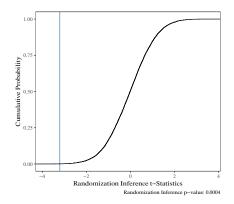
Appendix C. Additional Figures

Figure C1: Validating Crop Calendar Data: Relationship Between Predicted Maize Harvest Timing and Actual Maize Harvest



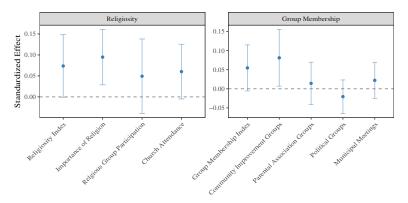
*Notes:* The figure presents binscatters between the share of a state's total maize harvest that occurs on a given month and the share of municipalities in a state that have their maize harvest on a given month according to the FAO GAEZ data. The unit of observation is a state-month pair. State harvest Data are from the *Servicio de Información Agroalimentaria y Pesquera (SIAP)* for 2015. The bottom-right of each figure presents the estimated bivariate coefficient, *t*-statistic, and  $R^2$ . Standard errors are clustered at the state level.

Figure C2: Randomization Inference Exercise – Placebo Festivals



*Notes:* The figure presents the cumulative distribution function for the estimated t-statistics for the randomization inference exercise. Specifically, we conduct 10,000 simulations where we randomly assign whether or not a festival coincides with planting or harvest for each municipality and estimate our main specification, and then plot the cumulative distribution function for the estimated t-statistics. The dependent variable is *Log Household Income*. All regressions include state fixed effects, *Geography Controls, Colonial Controls, Festival-Week Fixed Effects*, and *Planting- & Harvest-Month Fixed Effects*. Observations are municipalities in the *New Spain* region of Mexico. Additionally, the figure presents the estimated t-statistic for our sample, and reports the randomization inference p-value on the bottom right of the figure.

## Figure C<sub>3</sub>: Impact of Coinciding Festivals on Religiosity and Social Capital: Estimates for *Religiosity Index* and *Group Membership Index* Components





Notes: Data are from the Americas Barometer (LAPOP) data for New Spain region of Mexico. The figure presents the estimated coefficients and respective 95% confidence intervals from estimating equation (1) on the sub-components of the *Religiosity Index* and the *Group Membership Index*. The dependent variables are denoted on the x-axis. We first show the estimates for each index, followed by estimates for each of the individual sub-components of the index. (See Data Appendix for more information.) The independent variable is *Festival Coincides with Maize Planting or Harvest:* an indicator variable equal to 1 if the saint day festival in a municipality occurs either o to 30 days prior to the optimal maize planting date or o to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data. The regressions control for respondent age, age squared, gender, and for the following set of controls: Survey-Wave Fixed Effects, State Fixed Effects, Geography Controls, *Colonial Controls, Festival-Week Fixed Effects, and Planting-& Harvest-Month Fixed Effects.* 

### Sensitivity to 30-Day Window Used to Define Coinciding with Planting or Harvest Months

We vary the 30-day window (relative to planting and harvest) used to estimate our main specification and examine when the negative impacts of festivals seem to arise. Specifically, in equation (1), we focus on the periods when having a festival coincide with planting/harvest may lead to lower long-run development: periods when festival expenditures may crowd out agricultural labor time and investments. We defined these periods as being 0-30 day prior to planting and 0-30 after harvest. However, there are many other 30-day windows one could use to define these overlap periods. Thus, we conduct an exercise to explore the timing of the main impacts by varying the 30-day window across time and estimating our main impacts. To conduct this exercise we estimate the following specification:

$$y_m = \alpha_{s(m)} + \beta_i \text{ Festival: } i \pm 15 \text{ days from Planting}_m + \gamma_i \text{ Festival: } i \pm 15 \text{ from Harvest}_m + \mathbf{X}'_m \mathbf{B} + \epsilon_m$$
(A1)

where our coefficients of interest are  $\beta_i$  and  $\gamma_j$ , the effect of festivals occurring  $i \pm 15$  days from planting or harvest for various values of *i*; and other variables are defined as before in equation (1). In other words, equation (A1) estimates our main specification but instead uses various rolling 30-day windows relative to planting and harvest.

Figure C4 presents the coefficient plot for the estimates of interest from estimating equation (A1) on log household income used in Table 2. The estimates suggest an interesting time dimension to the impacts of festivals on development. First, the negative estimated effects of festivals coinciding with planting appear for various rolling windows prior to planting but converge toward zero following planting. Second, we observe the opposite timing for harvest festivals: the negative estimated effects of festivals coinciding with harvest only begin to appear following harvest (and are statistically insignificant and close to zero prior to harvest). Additionally, the estimates show that the main results are not particularly sensitive to the specific 30-day window we consider. These results are consistent with the hypotheses that the timing of festivals is important for understanding their development consequences, and that festivals can crowd out investments and decrease development when they occur in times of when time-sensitive economic opportunities exist.

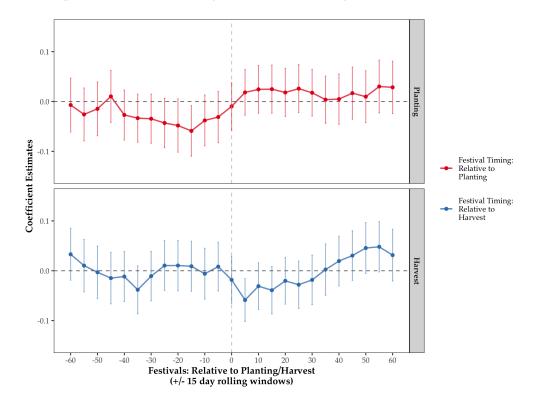


Figure C4: Impacts of Festival Timing Relative to Planting and Harvest Dates

*Notes:* Data are from the 2010 Mexico Population Census for the *New Spain* region of Mexico. The figure presents the estimated  $\beta_i$  (top panel) and  $\gamma_i$  (bottom panel) coefficients and respective 95% confidence intervals from estimating equation (A1) for  $i \in -60,60$  days. The outcome variable is *Log Household Income. Festival :*  $i \pm 15$  *days from Planting* (top panel) is an indicator variable equal to 1 if the festival occurs  $i \pm 15$  from the optimal planting date according to FAO GAEZ data (where negative values of *i* means that the festival occurs prior to planting); *Festival :*  $i \pm 15$  *days from Harvest* (bottom panel) is an indicator variable equal to 1 if the festival occurs  $i \pm 15$  from the optimal because  $i \pm 15$  days from the regative values of *i* means that the festival occurs prior to planting); *Festival :*  $i \pm 15$  from the optimal harvest date according to FAO GAEZ data (where negative values of *i* means that the festival occurs prior to harvest). The regressions control for the full-set of controls: *State Fixed Effects, Geography Controls, Colonial Controls, Festival-Week Fixed Effects*, and *Planting-& Harvest-Month Fixed Effects*.

## Appendix D. Additional Tables

## Table D1: Relationship Between Festival, Planting, and Harvest Months: All of Mexico

		-	<b>it Variable:</b> al Date	
	(1)	(2)	(3)	(4)
Maize Planting or Harvest Month	0.001 (0.015) [0.016]	0.003 (0.016) [0.016]		
Maize Planting Month			0.003 (0.019) [0.019]	0.014 (0.021) [0.020]
Maize Harvest Month			-0.001 (0.023) [0.024]	-0.009 (0.024) [0.024]
Calendar Date Fixed Effects Date by State Fixed Effects	Y N	N Y	Y N	N Y
Observations Clusters	833,382 2,277	833,382 2,277	833,382 2,277	833,382 2,277
Mean Dep. Var.	0.273	0.273	0.273	0.273

Notes:Observations are at the municipality-month level for municipalities in Mexico for which we<br/>have festival data. Standard errors clustered at the municipality level are presented in parentheses<br/>and Conley (1999) standard errors clustered at the municipality level are presented in parentheses<br/>and Conley (1999) standard errors clustered at the municipality level are presented in parentheses<br/>and conley (1999) standard errors clustered at the function of the observation of the optimal maize<br/>planting date or to variable equal to 1 if a date falls within 0 to 30 days prior to the optimal maize<br/>planting date or 0 to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ<br/>data. *Maize Planting Month* is an indicator variable equal to 1 if a date falls within 0 to 30 days prior to the optimal maize planting date for a municipality using FAO GAEZ data. *Maize Planting the for a municipality using FAO GAEZ data*. *Calendar Week Fixed Effects* are interaction terms between calendar week and Mexican state fixed effects. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

	Non-Coinciding Festival			Coinciding Festival			Regression Estimates: Coinciding Festival		
	Obs.	Mean	SE	Obs.	Mean	SE	Coef.	Robust SE	Conley SE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Geographic Characteristics:									
Precipitation	1406	95.12	(1.21)	187	97.70	(3.61)	-2.45	(3.49)	[3.13]
Temperature	1406	19.06	(0.11)	187	19.64	(0.27)	-0.08	(0.18)	[0.17]
Land Suitability	1406	86.48	(0.33)	187	84.61	(1.26)	-0.95	(0.94)	[1.00]
Maize Suitability	1406	34.51	(0.58)	187	34.78	(1.62)	2.58	(1.54)	[1.44]
Area	1406	328.13	(13.21)	187	341.75	(40.16)	-3.32	(36.20)	[36.03]
Longitude	1406	-98.32	(0.05)	187	-98.23	(0.15)	-0.05	(0.06)	[0.06]
Latitude	1406	18.65	(0.04)	187	18.79	(0.12)	0.06	(0.05)	[0.05]
Log(Dist. to Mexico City)	1406	5.42	(0.02)	187	5.52	(0.05)	-0.02	(0.02)	[0.02]
Slope	1406	10.35	(0.17)	187	9.54	(0.46)	-0.54	(0.46)	[0.45]
Elevation	1406	1572.20	(20.92)	187	1466.56	(57.63)	34.86	(35.99)	[34.38]
Colonial Characteristics:									
Has Colonial Characteristics (%)	1406	86.06	(0.92)	187	82.89	(2.76)	0.25	(2.90)	[2.73]
Drought in 1545 (%)	1210	99.67	(0.17)	155	98.06	(1.11)	-1.50	(0.90)	[1.02]
Log(Pop. Density in 1570)	1210	0.53	(0.03)	155	0.42	(0.08)	0.04	(0.06)	[0.04]

Table D2: Municipality Characteristics and Coinciding Festivals

Notes: Observations are municipalities in the *New Spain* region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Coinciding Festival* is an indicator variable equal to 11 if the saint day festival in a municipality occurs either within 0-30 days prior to the optimal maize planting date or 0-30 days after the optimal maize harvest date for a municipality using FAO GAEZ data, and 0 otherwise. The value displayed for regression estimates is the coefficient estimate for *Coinciding Festival*, conditional on state fixed effects, planting-month and harvest-month fixed effects, and harvest-knowth fixed effects. Robust standard errors are presented in parentheses. See Data Appendix for more information on variables. Note that we do not have colonial characteristics for all observations in our sample; therefore, we also show results for *Has Colonial Characteristics*, an indicator equal to 1 if a municipality is not missing colonial characteristics. \* p < 0.05, \*\*\* p < 0.05.

#### Table D3: Municipality Characteristics and Coinciding Festivals: All of Mexico

	Non-Coinciding Festival				Coinciding Festival			Regression Estimates: Coinciding Festival		
	Obs.	Mean	SE	Obs.	Mean	SE	Coef.	Robust SE	Conley SE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Geographic Characteristics:										
Precipitation	1952	91.05	(1.11)	325	85.62	(2.87)	-3.87	(2.36)	[2.19]	
Temperature	1952	19.64	(0.09)	325	20.14	(0.21)	-0.21	(0.15)	[0.14]	
Land Suitability	1952	78.51	(0.59)	325	70.30	(1.82)	-0.03	(0.78)	[0.75]	
Maize Suitability	1952	31.44	(0.47)	325	29.22	(1.13)	1.38	(0.99)	[0.99]	
Area	1952	823.83	(47.51)	325	1607.46	(260.95)	220.95	(162.21)	[157.23]	
Longitude	1952	-98.56	(0.09)	325	-99.48	(0.30)	-0.06	(0.05)	[0.05]	
Latitude	1952	19.78	(0.07)	325	21.01	(0.23)	0.08	(0.05)	[0.05]	
Log(Dist. to Mexico City)	1952	5.80	(0.02)	325	6.10	(0.05)	-0.01	(0.02)	[0.01]	
Slope	1952	9.25	(0.15)	325	8.31	(0.34)	-0.44	(0.33)	[0.33]	
Elevation	1952	1405.45	(18.84)	325	1238.76	(45.68)	47.80	(30.40)	[27.85]	
Colonial Characteristics:										
Has Colonial Characteristics (%)	1952	73.31	(1.00)	325	66.77	(2.62)	-0.41	(1.83)	[1.83]	
Drought in 1545 (%)	1431	97.48	(0.41)	217	96.31	(1.28)	0.17	(1.36)	[1.51]	
Log(Pop. Density in 1570)	1431	0.27	(0.03)	217	-0.07	(0.09)	0.02	(0.05)	[0.04]	

Notes: Observations are municipalities in the *New Spain* region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Coinciding Festival* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either within 0-30 days prior to the optimal maize planting date or 0-30 days after the optimal maize harvest date for a municipality using FAO GAEZ data, and 0 otherwise. The value displayed for regressions estimates is the coefficient estimate for *Coinciding Festival*, conditional on state fixed effects, planting-month and harvest-month fixed effects, and festival week fixed effects. Robust standard errors are presented in parentheses. Robust standard errors are presented in parentheses. Be Data Appendix for more information on variables. *Festival: Coincides* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either within 0-30 days after the optimal maize planting date or 0-30 days after the optimal maize date for a municipality using FAO GAEZ data, and 0 otherwise. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

		Dep	endent Var	iable:	
		Panel	A: Log HH	Income	
	(1)	(2)	(3)	(4)	(5)
Festival: 0-30 Days Prior to Maize Planting	-0.368 (0.149) [0.161]	-0.152 (0.126) [0.117]	-0.268 (0.112) [0.130]	-0.291 (0.110) [0.129]	-0.268 (0.128) [0.136]
Festival: 0-30 Days After Maize Harvest	-0.217 (0.125) [0.135]	-0.237 (0.097) [0.098]	-0.241 (0.086) [0.088]	-0.233 (0.086) [0.087]	-0.171 (0.095 [0.087]
State Fixed Effects	Ν	Y	Y	Y	Y
Geography Controls	Ν	Ν	Y	Y	Y
Colonial Controls	Ν	Ν	Ν	Y	Y
Planting-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Harvest-Month Fixed Effects	N	N	N	N	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations	1,593	1,593	1,593	1,593	1,593
Adjusted R2	0.004	0.347	0.537	0.543	0.566
Mean Dep. Var.	3.234	3.234	3.234	3.234	3.234
SD Dep. Var.	1.330	1.330	1.330	1.330	1.330
P-Value: Difference	0.422	0.577	0.844	0.666	0.542

#### Table D4: Development Outcomes and Planting- and Harvest-Coinciding Festivals

Dependent Variable:

	Р	anel B: Inde	x of Econom	ic Developm	ent
	(1)	(2)	(3)	(4)	(5)
Festival: 0-30 Days Prior to Maize Planting	-0.775 (0.459) [0.502]	-0.035 (0.391) [0.356]	-0.361 (0.356) [0.369]	-0.443 (0.353) [0.368]	-0.496 (0.388) [0.374]
Festival: 0-30 Days After Maize Harvest	-0.645 (0.376) [0.419]	-0.663 (0.284) [0.306]	-0.737 (0.243) [0.256]	-0.718 (0.244) [0.259]	-0.560 (0.267) [0.231]
State Fixed Effects	N	Y	Y	Y	Y
Geography Controls	Ν	Ν	Y	Y	Y
Colonial Controls	Ν	Ν	Ν	Y	Y
Planting-Month Fixed Effects	N	Ν	Ν	Ν	Y
Harvest-Month Fixed Effects	N	Ν	Ν	Ν	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations	1,593	1,593	1,593	1,593	1,593
Adjusted R2	0.002	0.348	0.566	0.571	0.597
Mean Dep. Var.	-0.589	-0.589	-0.589	-0.589	-0.589
SD Dep. Var.	4.039	4.039	4.039	4.039	4.039
P-Value: Difference	0.820	0.177	0.370	0.511	0.891

Notes: Data is from the 2010 Mexico Population Census. Observations are municipalities in the New Spain region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Index of Economic Development* is the first principal component index for a number of development outcomes in the census for a municipality (see Data Appendix). *Festival Coincides with Maize Planting or Harvest* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either 0 to 30 days prior to the optimal maize planting date or 0 to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data. *Geography Controls* includes mean temperature, mean precipitation, mean land suitability, the surface area, centroid latitude, centroid longitude, mean elevation, mean slope, log distance to Mexico City, and mean maize suitability for the municipality. *Colonial Controls* includes drought intensity in 1545 and log population density in 1570 using data from Sellers and Alix-Garcia (2018). For these colonial controls, values for municipality is not missing these colonial characteristics. *Planting & Harvest Month Fixed Effects* includes fixed effects for the optimal planting-month and harvest-month for more each municipality's saint day festival. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

	Dependent Variable: Panel A: Log HH Income								
	(1)	(2)	(3)	(4)	(5)				
Festival Coincides with Maize Planting or Harvest	-0.009	-0.099	-0.138	-0.140	-0.110				
Ŭ	(0.080) [0.094]	(0.063) [0.065]	(0.056) [0.064]	(0.056) [0.063]	(0.060 [0.060]				
State Fixed Effects	Ν	Y	Y	Y	Y				
Geography Controls	Ν	Ν	Y	Y	Y				
Colonial Controls	Ν	Ν	Ν	Y	Y				
Planting-Month Fixed Effects	Ν	Ν	Ν	Ν	Y				
Harvest-Month Fixed Effects	Ν	Ν	Ν	Ν	Y				
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y				
Observations	2,277	2,277	2,277	2,277	2,277				
Adjusted R2	-0.000	0.351	0.518	0.522	0.534				
Mean Dep. Var.	3.379	3.379	3.379	3.379	3.379				
SD Dep. Var.	1.316	1.316	1.316	1.316	1.316				
	Dependent Variable:								

### Table D5: Impact of Agriculturally-Coinciding Festivals on Development Outcomes: All of Mexico

		Dep	endent Var	iable:	
	Р	anel B: Inde	x of Econom	ic Developm	ent
	(1)	(2)	(3)	(4)	(5)
Festival Coincides with Maize Planting or Harvest	0.103 (0.249) [0.315]	-0.231 (0.194) [0.204]	-0.348 (0.171) [0.187]	-0.353 (0.171) [0.186]	-0.283 (0.181) [0.167]
State Fixed Effects	Ν	Y	Y	Y	Y
Geography Controls	Ν	Ν	Y	Y	Y
Colonial Controls	Ν	Ν	Ν	Y	Y
Planting-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Harvest-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations	2,277	2,277	2,277	2,277	2,277
Adjusted R2	-0.000	0.379	0.557	0.560	0.573
Mean Dep. Var.	-0.084	-0.084	-0.084	-0.084	-0.084
SD Dep. Var.	4.052	4.052	4.052	4.052	4.052

*Notes*: Data is from the 2010 Mexico Population Census. Observations are municipalities in Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Index of Economic Development* is the first principal component index for a number of development outcomes in the census for a municipality (see Data Appendix). *Festival Coincides with Maize Planting or Harvest* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either 0 to 30 days prior to the optimal maize planting date or 0 to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data. *Geography Controls* includes mean temperature, mean precipitation, mean land suitability, the surface area, centroid latitude, centroid longitude, mean elevation, mean slope, log distance to Mexico City, and mean maize suitability for the municipality. *Colonial Controls* includes drought intensity in 1545 and log population density in 1570 using data from Sellers and Alix-Garcia (2018). For these colonial controls, values for municipalities with missing information are set to zero, and we control for an indicator variable equal to 1 if the municipality is not missing these colonial characteristics. *Planting & Harvest Month Fixed Effects* includes fixed effects for the optimal planting-month and harvest-month for maize for each municipality according to FAO GAEZ data. *Festival-Week Fixed Effects* are fixed effects for the calendar date of the municipality's saint day festival. \* p < 0.00, \*\*\* p < 0.05, \*\*\*\* p < 0.01.

	Festival Date Determined				Festival Date Undetermined			Regression Estimates: Festival Date Undetermined			
	Obs.	Mean	SE	Obs.	Mean	SE	Coef.	Robust SE	Conley SI		
	(1)	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Geographic Characteristics:											
Precipitation	1593	95.43	(1.15)	46	101.68	(7.93)	1.98	(6.81)	[5.45]		
Temperature	1593	19.12	(0.10)	46	20.10	(0.61)	0.76	(0.49)	[0.53]		
Land Suitability	1593	86.26	(0.33)	46	80.83	(2.53)	-4.84	(2.10)	[1.80]		
Maize Suitability	1593	34.54	(0.55)	46	36.85	(2.96)	2.34	(2.98)	[3.02]		
Area	1593	329.73	(12.57)	46	416.61	(81.26)	52.42	(80.22)	[80.17]		
Longitude	1593	-98.31	(0.05)	46	-98.10	(0.28)	0.18	(0.11)	[0.09]		
Latitude	1593	18.67	(0.04)	46	19.14	(0.23)	-0.11	(0.12)	[0.11]		
Log(Dist. to Mexico City)	1593	5.43	(0.02)	46	5.41	(0.10)	0.07	(0.05)	[0.03]		
Slope	1593	10.26	(0.16)	46	8.71	(1.00)	-0.82	(0.97)	[1.06]		
Elevation	1593	1559.80	(19.68)	46	1314.65	(134.19)	-137.09	(94.00)	[99.79]		
Colonial Characteristics:											
Has Colonial Characteristics (%)	1593	85.69	(0.88)	46	82.61	(5.65)	-0.94	(4.84)	[4.61]		
Drought in 1545 (%)	1365	99.49	(0.19)	38	100	(0.00)	0.68	(0.69)	[0.55]		
Log(Pop. Density in 1570)	1365	0.52	(0.03)	38	0.53	(0.21)	-0.12	(0.12)	[0.10]		

Table D6: Municipality Characteristics and Undetermined Festival Date

Notes: Observations are municipalities in the New Spain region of Mexico.Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. See Data Appendix for more information on variables. Sample is limited to the New Spain region of Mexico. Festival Date Undetermined is an indicator variable equal to 1 if we were unable to determine the patron saint day festival in a municipality, and 0 otherwise. The value displayed for regressions estimates is the coefficient estimate for Festival Date Undetermined, conditional on state fixed effects, planting-month and harvest-month fixed effects, and festival week fixed effects. Robust standard errors are presented in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

	Official Patron Saint				Local Patron Saint			Regression Estimates: Local Patron Saint		
	Obs.	Mean	SE	Obs.	Mean	SE	Coef.	Robust SE	Conley SE	
	(1)	(1) (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Geographic Characteristics:										
Precipitation	1593	95.43	(1.15)	32	78.25	(5.54)	-7.27	(5.67)	[4.96]	
Temperature	1593	19.12	(0.10)	32	18.74	(0.72)	0.02	(0.38)	[0.33]	
Land Suitability	1593	86.26	(0.33)	32	86.52	(3.09)	-0.53	(1.67)	[1.62]	
Maize Suitability	1593	34.54	(0.55)	32	44.75	(3.17)	2.07	(2.56)	[2.71]	
Area	1593	329.73	(12.57)	32	381.08	(74.68)	-42.10	(52.41)	[56.75]	
Longitude	1593	-98.31	(0.05)	32	-99.92	(0.39)	-0.16	(0.10)	[0.10]	
Latitude	1593	18.67	(0.04)	32	19.70	(0.18)	0.12	(0.10)	[0.11]	
Log(Dist. to Mexico City)	1593	5.43	(0.02)	32	5.19	(0.15)	0.08	(0.05)	[0.05]	
Slope	1593	10.26	(0.16)	32	6.98	(0.65)	-0.98	(0.66)	[0.67]	
Elevation	1593	1559.80	(19.68)	32	1700.77	(138.01)	47.58	(76.38)	[67.00]	
Colonial Characteristics:										
Has Colonial Characteristics (%)	1593	85.69	(0.88)	32	93.75	(4.35)	5.68	(4.55)	[4.55]	
Drought in 1545 (%)	1365	99.49	(0.19)	30	100	(0.00)	0.98	(0.80)	[0.82]	
Log(Pop. Density in 1570)	1365	0.52	(0.03)	30	0.56	(0.24)	-0.09	(0.11)	[0.09]	

#### Table D7: Municipality Characteristics and "Local" Patron Saints

Notes: Observations are municipalities in the New Spain region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. See Data Appendix for more information on variables. Local Patron Saint is an indicator variable equal to 1 if the patron saint in a municipality is not an official Vatican patron saint, and 0 otherwise. The value displayed for regressions estimates is the coefficient estimate for Local Patron Saint, conditional on state fixed effects, planting-month and harvest-month fixed effects, and festival week fixed effects. Robust standard errors are presented in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

		Dep	endent Var	iable:	
		Panel	A: Log HH	Income	
	(1)	(2)	(3)	(4)	(5)
Festival Coincides with Maize Planting or Harvest	-0.191 (0.090) [0.094]	-0.173 (0.073) [0.073]	-0.220 (0.063) [0.071]	-0.219 (0.063) [0.069]	-0.201 (0.069 [0.068]
State Fixed Effects	Ν	Y	Y	Y	Y
Geography Controls	Ν	Ν	Y	Y	Y
Colonial Controls	Ν	Ν	Ν	Y	Y
Planting-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Harvest-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations	1,639	1,639	1,639	1,639	1,632
Adjusted R2	0.002	0.345	0.538	0.543	0.562
Mean Dep. Var.	3.239	3.239	3.239	3.239	3.238
SD Dep. Var.	1.328	1.328	1.328	1.328	1.329

### Table D8: Robustness to Missing Festival Dates: Development Outcomes (Assuming All Municipalities with Missing Festival Dates Have Coinciding Festivals)

	<b>Dependent Variable:</b> Panel B: Index of Economic Development								
	(1)	(2)	(3)	(4)	(5)				
Festival Coincides with Maize Planting or Harvest	-0.478	-0.328	-0.485	-0.492	-0.525				
	(0.277)	(0.227)	(0.194)	(0.194)	(0.207)				
	[0.298]	[0.236]	[0.209]	[0.206]	[0.198]				
State Fixed Effects	Ν	Y	Y	Y	Y				
Geography Controls	N	N	Ŷ	Ŷ	Ŷ				
Colonial Controls	N	N	N	Y	Ŷ				
Planting-Month Fixed Effects	N	N	N	N	Ŷ				
Harvest-Month Fixed Effects	N	N	N	N	Y				
Festival-Week Fixed Effects	N	N	N	N	Ŷ				
Observations	1,639	1,639	1,639	1,639	1,632				
Adjusted R2	0.001	0.344	0.563	0.568	0.588				
Mean Dep. Var.	-0.576	-0.576	-0.576	-0.576	-0.574				
SD Dep. Var.	4.039	4.039	4.039	4.039	4.047				

*Notes*: Regressions in this table are identical to those in Table 2, except that municipalities with missing festival dates (previously not included in sample) are now included in the sample, and we assume that their festivals *all* coincide with planting or harvest (for these observations, festival week is randomly chosen for the inclusion of Festival-Week Fixed Effects in column 5). Data is from the 2010 Mexico Population Census. Observations are municipalities in the *New Spain* region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Index of Economic Development* is the first principal component index for a number of development outcomes in the census for a municipality (see Data Appendix). *Festival Coincides with Maize Planting or Harvest* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either 0 to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data. For this table, we assume all undetermined festival dates are coinciding festivals. *Geography Controls* includes mean temperature, mean precipitation, mean land suitability, the surface area, centroid latitude, centroid longitude, mean elevation, mean slope, log distance to Mexico City, and mean maize suitability for the municipality. *Colonial Controls* includes drought intensity in 1545 and log population density in 1570 using data from Sellers and Alix-Garcia (2018). For these colonial controls, values for municipalities with missing information are set to zero, and we control for an indicator variable equal to 1 if the municipality is not missing these colonial characteristics. *Planting & Harvest Month Fixed Effects* includes fixed effects for the optimal planting-month and harvest-month for maize for each municipality according to FAO GAEZ data. *Festival-Week Fixed Effects* are fixed effects for the calendar date of the municipality's saint day festival. \* p < 0.0

	Dependent Variable:				
	Panel A: Log HH Income				
	(1)	(2)	(3)	(4)	(5)
Festival Coincides with Maize Planting or Harvest	-0.280 (0.099) [0.107]	-0.205 (0.079) [0.079]	-0.249 (0.070) [0.081]	-0.254 (0.070) [0.079]	-0.228 (0.075) [0.078]
State Fixed Effects	Ν	Y	Y	Y	Y
Geography Controls	Ν	Ν	Y	Y	Y
Colonial Controls	Ν	Ν	Ν	Y	Y
Planting-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Harvest-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations	1,639	1,639	1,639	1,639	1,631
Adjusted R2	0.004	0.345	0.538	0.543	0.561
Mean Dep. Var.	3.239	3.239	3.239	3.239	3.237
SD Dep. Var.	1.328	1.328	1.328	1.328	1.329

### Table D9: Robustness to Missing Festival Dates: Development Outcomes (Assuming No Municipalities with Missing Festival Dates Have Coinciding Festivals)

	<b>Dependent Variable:</b> Panel B: <i>Index of Economic Development</i>				
	(1)	(2)	(3)	(4)	(5)
Festival Coincides with Maize Planting or Harvest	-0.708	-0.428	-0.592	-0.613	-0.617
	(0.300)	(0.239)	(0.208)	(0.207)	(0.226)
	[0.342]	[0.249]	[0.224]	[0.218]	[0.210]
					•
State Fixed Effects	Ν	Y	Y	Y	Y
Geography Controls	N	Ν	Y	Y	Y
Colonial Controls	N	N	N	Y	Y
Planting-Month Fixed Effects	N	Ν	Ν	N	Y
Harvest-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations	1,639	1,639	1,639	1,639	1,631
Adjusted R2	0.002	0.344	0.564	0.569	0.588
Mean Dep. Var.	-0.576	-0.576	-0.576	-0.576	-0.578
SD Dep. Var.	4.039	4.039	4.039	4.039	4.045

*Notes*: Regressions in this table are identical to those in Table 2, except that municipalities with missing festival dates (previously not included in sample) are now included in the sample, and we assume that *none* of their festivals coincide with planting or harvest (for these observations, festival week randomly chosen among non-planting and non-harvest months for inclusion of Festival-Week Fixed Effects in column 5). Data is from the 2010 Mexico Population Census. Observations are municipalities in the *New Spain* region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Index of Economic Development* is the first principal component index for a number of development outcomes in the census for a municipality (see Data Appendix). *Festival Coincides with Maize Planting or Harvest* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either 0 to 30 days prior to the optimal maize planting date or 0 to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data. For this table, we assume all undetermined festival dates are not coinciding festivals. *Ceography Controls* includes mean temperature, mean precipitation, mean land suitability, the surface area, centroid longitude, mean elevation, mean slope, log distance to Mexico City, and mean maize suitability for the municipality. *Colonial Controls* includes drought intensity in 1545 and log population density in 1570 using data from Sellers and Alix-Garcia (2018). For these colonial controls, values for municipality is not missing these colonial characteristics. *Planting & Harvest Month Fixed Effects* includes fixed effects for the optimal planting-month and harvest-month for maize for each municipality according to FAO GAEZ data. *Festival-Week Fixed Effects* are fixed effects for the calendar date of the municipality is solve as the set of the optimal planting or population density i

	<b>Dependent Variable:</b> Panel A: Log HH Income				
	(1)	(2)	(3)	(4)	(5)
Festival Coincides with Maize Planting or Harvest	-0.261 (0.099) [0.109]	-0.183 (0.080) [0.080]	-0.234 (0.070) [0.081]	-0.239 (0.070) [0.078]	-0.195 (0.076) [0.073]
State Fixed Effects	N	Y	Y	Y	Ŷ
Geography Controls Colonial Controls	N N	N N	Y N	Y Y	Y Y
Planting-Month Fixed Effects	N	N	N	N	Ŷ
Harvest-Month Fixed Effects	Ν	Ν	Ν	Ν	Y
Festival-Week Fixed Effects	Ν	Ν	Ν	Ν	Y
Observations Adjusted R2 Mean Dep. Var. SD Dep. Var.	1,625 0.003 3.251 1.329	1,625 0.347 3.251 1.329	1,625 0.537 3.251 1.329	1,625 0.543 3.251 1.329	1,625 0.565 3.251 1.329

#### Table D10: Robustness to Including "Local" Patron Saints: Development Outcomes

	<b>Dependent Variable:</b> Panel B: Index of Economic Development				
	(1)	(2)	(3)	(4)	(5)
Festival Coincides with Maize Planting or Harvest	-0.661 (0.301) [0.352]	-0.350 (0.243) [0.260]	-0.539 (0.211) [0.230]	-0.559 (0.210) [0.225]	$\begin{array}{c} -0.491 \\ (0.225) \\ [0.195] \end{array}$
State Fixed Effects Geography Controls Colonial Controls Planting-Month Fixed Effects Harvest-Month Fixed Effects Festival-Week Fixed Effects	N N N N	Y N N N N	Y Y N N N	Y Y N N N	Y Y Y Y Y
Observations Adjusted R2 Mean Dep. Var. SD Dep. Var.	1,625 0.002 -0.528 4.048	1,625 0.349 -0.528 4.048	1,625 0.565 -0.528 4.048	1,625 0.570 -0.528 4.048	1,625 0.594 -0.528 4.048

*Notes:* Regressions in this table are identical to those in Table 2, except that municipalities celebrating "local" saints (those not appearing in official Roman Catholic records outside of Mexico, previously not included in sample) are now included in the sample, and we use their actual festival celebration dates to determine whether they coincide with planting or harvest. Data are from the 2010 Mexico Population Census. Observations are municipalities in the *New Spain* region of Mexico. Robust standard errors are presented in parentheses and Conley (1999) standard errors calculated using a 100 km cut-off window are presented in brackets. *Index of Economic Development* is the first principal component index for a number of development outcomes in the census for a municipality (see Data Appendix). *Festival Coincides with Maize Planting or Harvest* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either 0 to 30 days prior to the optimal maize harvest date for a municipality using FAO GAEZ data. For this table, we assume all undetermined festival dates are not coinciding festivals. *Geography Controls* includes mean temperature, mean precipitation, mean land suitability, the surface area, centroid latitude, centroid longitude, mean elevation, mean slope, log distance to Mexico City, and mean maize suitability for the municipality. *Colonial Controls* includes frought intensity in 1545 and log population density in 1570 using data from Sellers and Alix-Garcia (2018). For these colonial controls, values for municipality is not missing these colonial characteristics. *Planting & Harvest Month Fixed Effects* includes fixed effects for the optimal planting-month and harvest-month for maize for each municipality according to FAO GAEZ data. *For these colonial Controls*, values for municipalities with missing information are set to zero, and we control for an indicator variable equal to 1 if the municipality in 1545 and log population density in 1570 using data from Sellers and

	Dependent Variables:						
	% Born in a	% Different Municipality	% Different State	% Different Country			
	Different State	5 Years Ago	5 Years Ago	5 Years Ago			
	(1)	(2)	(3)	(4)			
Festival Coincides with Maize Planting or Harvest	-0.007 (0.006) [0.005]	-0.001 (0.002) [0.002]	-0.003 (0.001) [0.001]	0.004 (0.001) [0.001]			
State Fixed Effects	Y	Y	Y	Y			
Geography Controls	Y	Y	Y	Y			
Colonial Controls	Y	Y	Y	Y			
Planting-Month Fixed Effects	Y	Y	Y	Y			
Harvest-Month Fixed Effects	Υ	Y	Y	Y			
Festival-Week Fixed Effects	Y	Y	Y	Y			
Observations	1,593	1,593	1,593	1,593			
Adjusted R2	0.546	0.198	0.199	0.299			
Mean Dep. Var.	0.085	0.023	0.025	0.018			
SD Dep. Var.	0.103	0.029	0.022	0.015			

### Table D11: Impact of Agriculturally-Coinciding Festivals on Migration Outcomes

SD Dep. Var. 0.103 0.029 0.022 0.012 Notes: Data is from the 2010 Population Census. Observations are municipalities in the *New Spain* region of Mexico. Standard errors are clustered at the municipality level. *% Born in a Different State* is the share of individuals in a municipality that report being born in a different state than their current state of residence. *% Different Municipality 5 Years Ago* is the share of individuals in a municipality who report having lived in a different state of residence. *% Different Municipality 5 Years Ago* is the share of individuals in a municipality who report having lived in a different state for eversa go. *% Different State* is the share of individuals in a municipality who report having lived and different *Coincides with Maize Planting or Harvest* is an indicator variable equal to 1 if the saint day festival in a municipality occurs either 0 to 30 days prior to the optimal maize planting date or 0 to 30 days after the optimal maize harvest date for a municipality using FAO GAEZ data. *Ceography Controls* includes mean temperature, mean precipitation, mean land suitability, the surface area, centroid latitude, centroid longitude, mean levation, mean lande, juitability for the municipality. *Colonial Controls* includes for unkersion in formation areas and Alix-Garcia (2018). For these colonial controls, values for municipalities with missing information areas to zero, and we control for an indicator variable equal to 1 if the municipality is not missing these colonial characteristics. *Planting & Harvest Month Fixed Effects* includes fixed effects for the optimal planting-month and harvest-month for maize for each municipality according to FAO GAEZ data. *Festival-Week Fixed Effects* are fixed effects for the calendar week of the municipality's saint day festival. \* p < 0.05, \*\*\* p < 0.05, \*\*\* p < 0.01.

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