MORPEP META CMP
Graphical-data-extraction manual

Matthias Enzinger, Franz Prante

ToDo:

- Download and install the newest WebPlot-Digitizer version at https://automeris.io on your machine.
- Open the WebPlot-Digitizer app and load the respective impulse response function image via `File` –> `Load Images(s)`.

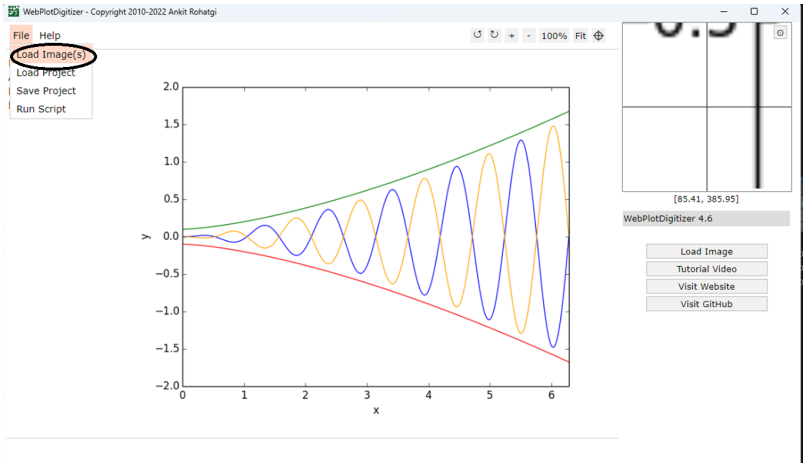

Figure 1: Load the respective impulse response function.

- Select the respective file you want to load –> and select the option `2D (X-Y) Plot`.

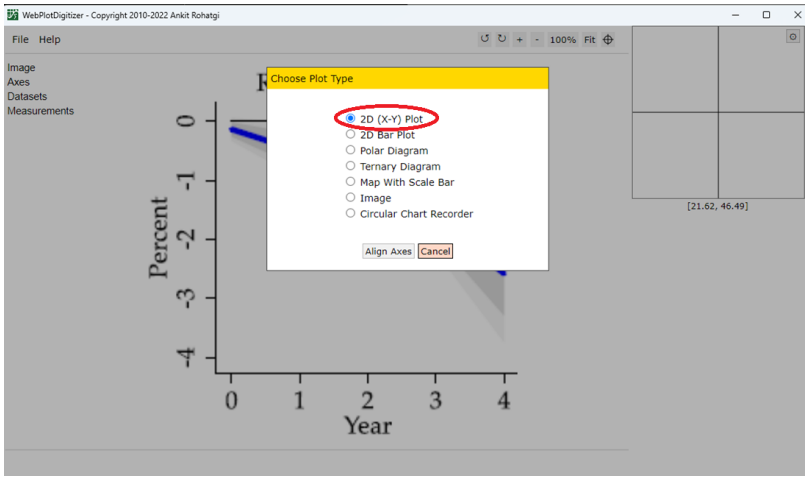

Figure 2: Select "2D (X-Y) Plot"

- Press `Align Axes`.
- Now carefully read the text shown in the `Align X-Y Axes` window, press `Proceed`, and click four known points on the axes in the **ORDER shown in red**.

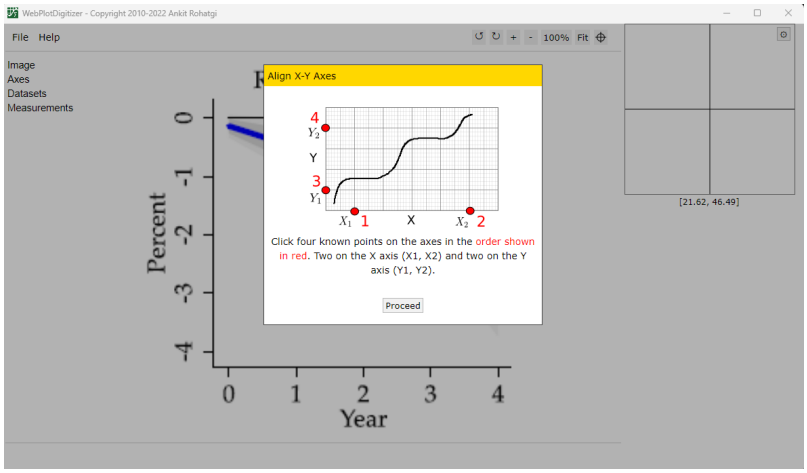

Figure 3: Align Axes

- Align the axes correspondingly and press `complete`.

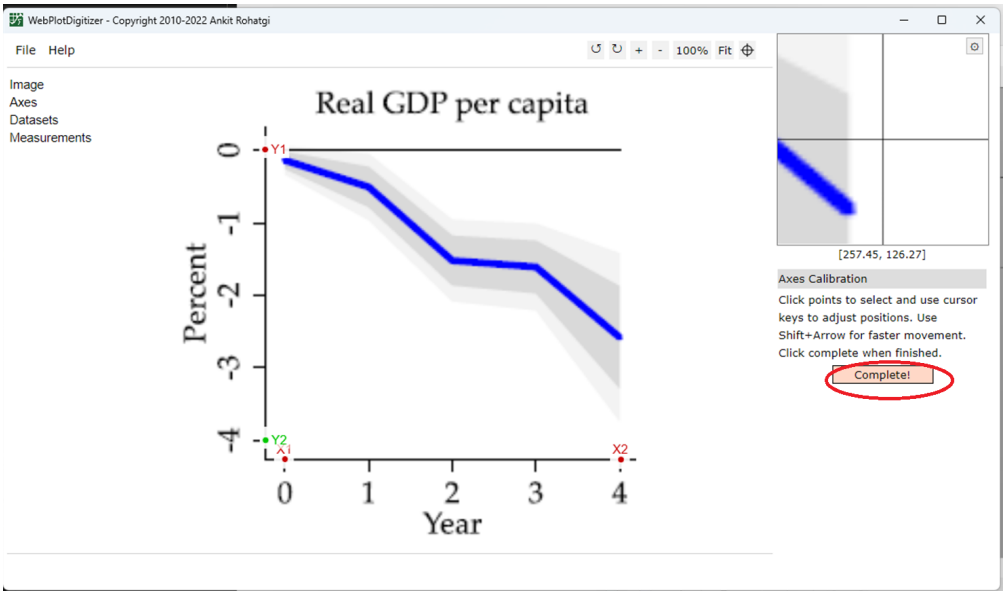

Figure 4: Align Axes example and press “complete”

- Now enter the respective values for the X-Axis and the Y-Axis you have chosen beforehand (take the order of the points into account). Tick the box `Assume axes are perfectly aligned with image coordinates (skip rotation correction)`. Tick the `Log Scale` Boxes only if the respective axis is in log scale and then press `OK`.

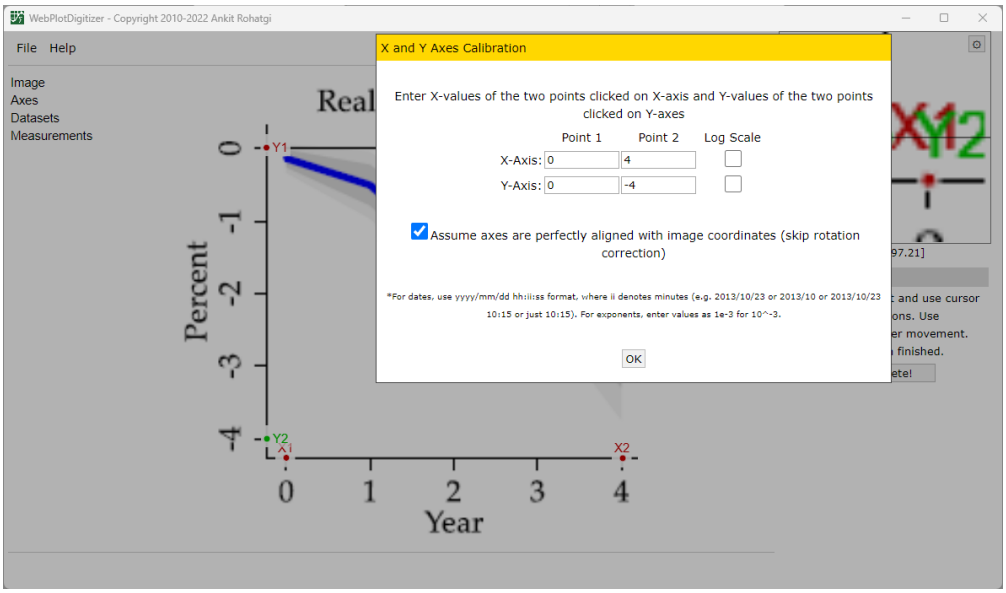

Figure 5: Enter the respective X-Axis and Y-Axis values example.

- Check out at the `Automatic Extraction` Section and select the `Pen`-Tab. Underneath the `Pen`-Tab, you can adjust the Pen width and try to follow the line you aim to extract as accurately as possible while pressing the left mouse button to draw a yellow line.

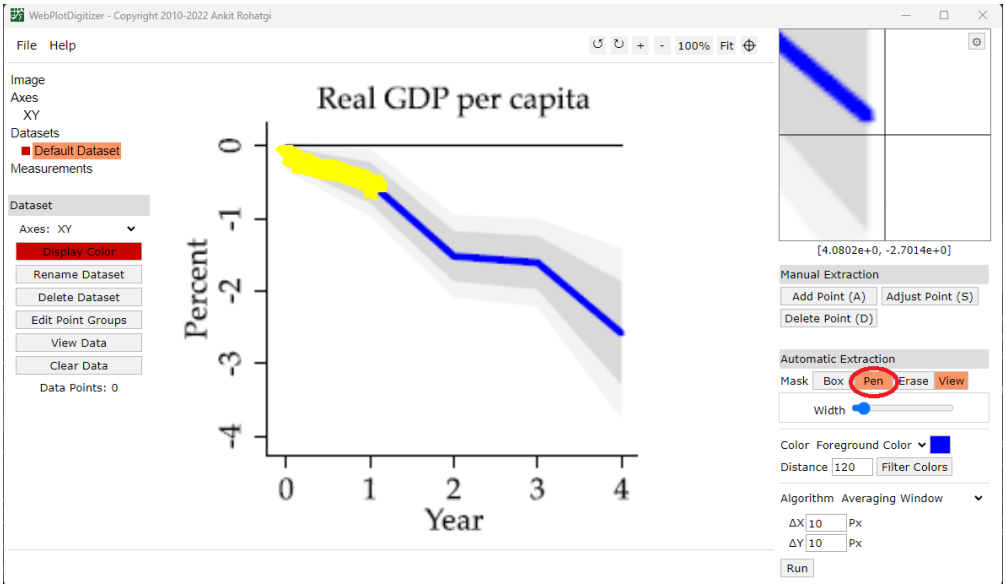

Figure 6: Select Pen Tab, adjust the width of the pen, and draw a Line

- Make sure you have marked the full area you want to extract.

- Now configure the foreground and background color of the respective line you want to extract. First, click on the area with the preliminary chosen foreground color. Second, click on the `Color Picker` button and click with the left mouse on the foreground color to automatically extract the color code. Third, press `Done` and check whether the foreground color has changed accordingly.

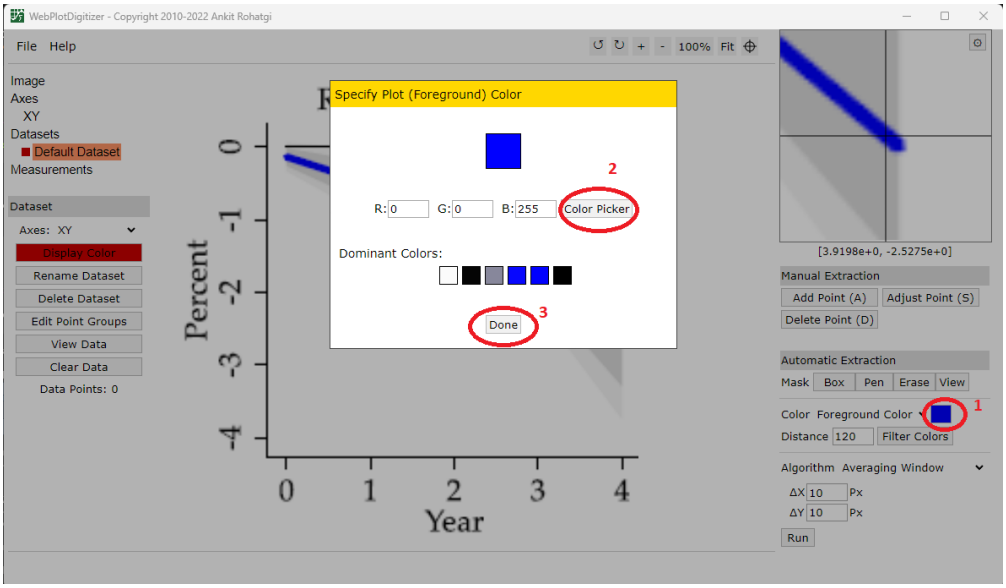

Figure 7: Three steps to adjust foreground color

- Re-open the `Pen` Tab (the yellow drawn line should be visible once you are in the `Pen` Tab).
- Follow the same procedure for the background color but this time select the color of the background nearby the line you would like to extract. As a preliminary step, change to "background color" in the drop-down menu, then proceed as before. Be aware that in the example bellow the background color is changed from white to grey (R:217 G:217 B:217) because the area next to the blue line is grey.

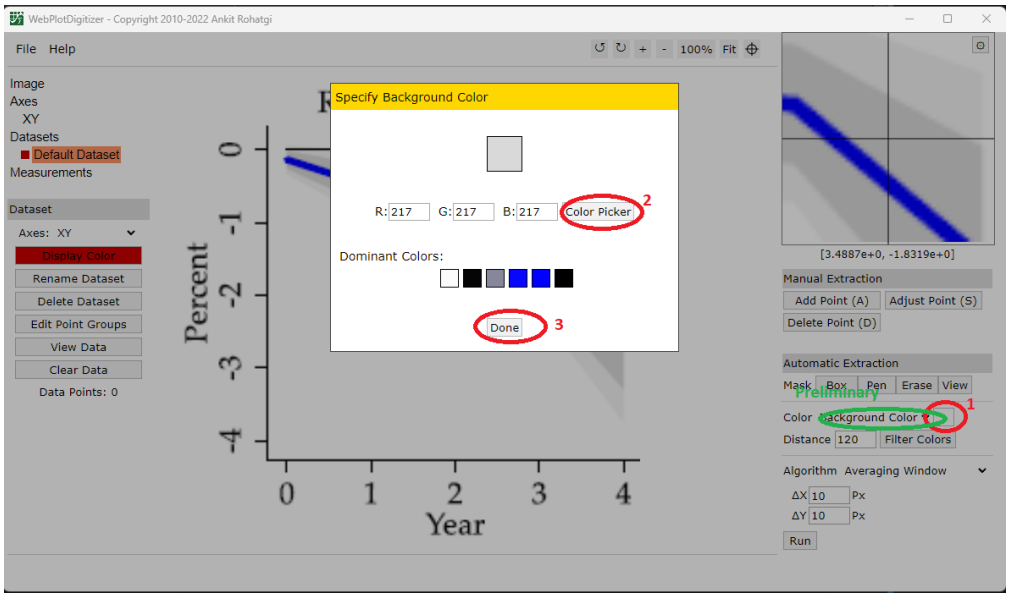

Figure 8: Three steps to adjust background color

- Re-open the `Pen` Tab once more.
- First, select the drop-down window near the `Algorithm` field, and second, select the option `X Step w/ Interpolation`.

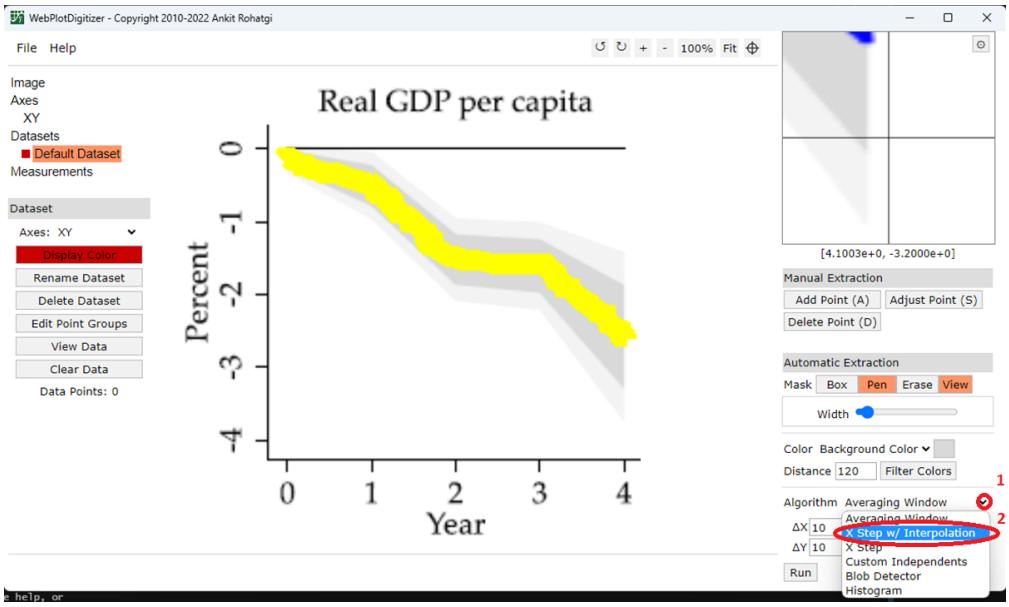

Figure 9: Select `X Step w/ Interpolation` Algorithm

- Now adjust the `ΔX Step` and starting and ending values for the X- and Y-axis. In the example, I changed the step-size from 0.08 to 1, because there are only yearly values observable. If instead the unit of the X Axis is years but the authors do the calculations using monthly data (and therefore Y-values adjust monthly), I would use 1/12=0.08333333333 for the `ΔX Step`.
- Finally, press `Run` and see the magic happen (in the most favorable case :D).

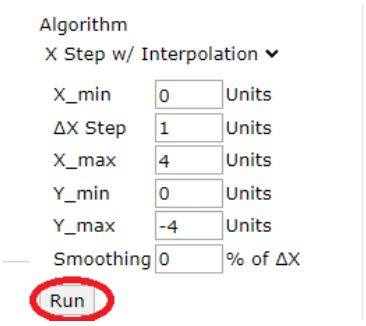

Figure 10: Adjust stepsize and starting and ending values for the X- and Y-axis.

- Our next step will be to adjust data points that haven't worked well. Therefore, we first click on the `Adjust Point S` button (1), and second, on the corresponding data point we would like to adjust (2). After a left click on the data point, you can adjust the point's position using the keyboard arrows. ATTENTION: Only use the upward and downward arrows, because the position on the X-Axis should be just fine if the `ΔX Step` and X_min and X_max have been chosen accordingly. In this way, you only adjust the Y-value of the respective observations.

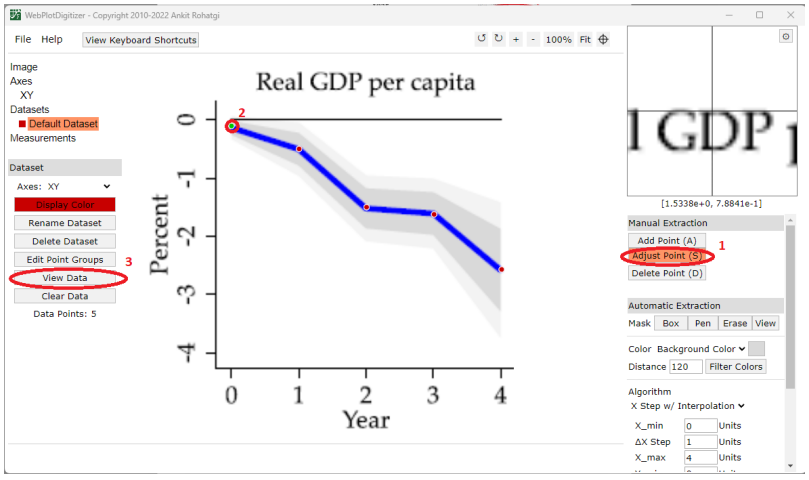

Figure 11: Adjust points

- In the next step, we add new datasets to the project to extract the upper and lower confidence bound in separate datasets. Therefore, we first click on `Datasets`. Secondly, click on the `Add Dataset` button, and third, add 2 additional datasets using the `Add Multiple Datasets` option.

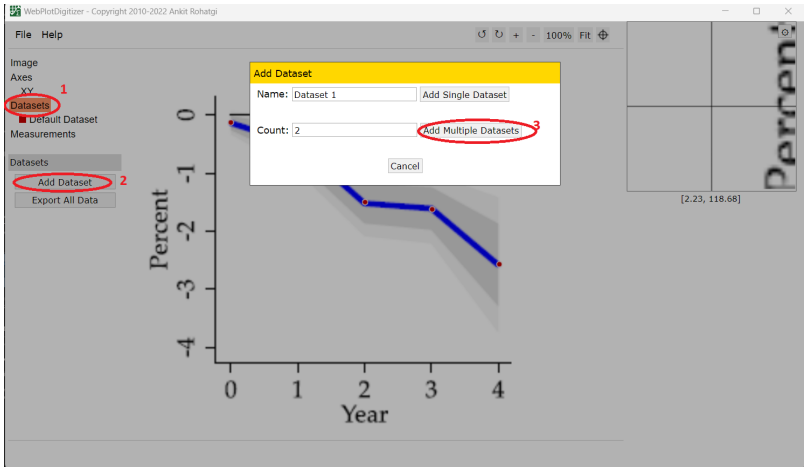

Figure 12: Add new datasets

- Now you can click through the different datasets and extract the upper bound of the confidence level in `Dataset 1` and the lower bound of the confidence level in `Dataset 2` in the same manner as for the mean estimate. Therefore, adjust the foreground and background colors accordingly. If a graph shows different confidence levels, choose the one that should be easier to extract automatically. But, use the same confidence level for the upper and lower bound.

- If all data points in the different datasets approximate their true values well, click the `View Data` button.
- Check whether the data in the tables fit the graph and if yes press `Download .CSV` and save each dataset separately as "KEY_MODEL_OUTCOME_LINE.csv". Where, "KEY" indicates the unique key of the literature entry, "MODEL" the number of the models in the respective study, "OUTCOME" the respective outcome variable (one of output, employment, or inflation), and "LINE" is one of (mean,up,low) for the mean estimate, the upper confidence interval, and the lower confidence interval. Using the drop-down menu near `Dataset`, you can switch between the three different datasets and save them separately and accordingly.

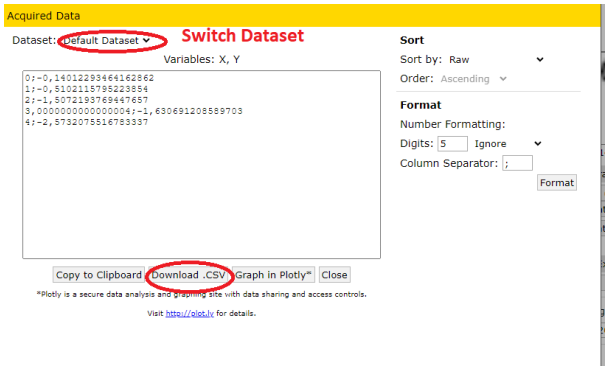

Figure 13: Save data

- In the last step, press `File` –> `Save Project`, and save the project as "KEY_MODEL_OUTCOME.tar" by selecting `Download Project File (.tar)` in the window.

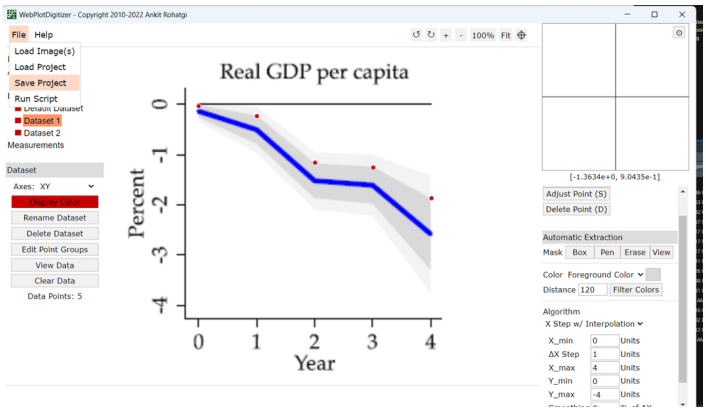

Figure 14: Save project